Subject: <u>INFORMATION:</u>   HRM Automation Plan          Date: MAY  5  1992

From: Assistant Administrator for          Reply to
      Human Resource Management            Attn. of:

To: Distribution

The Human Resource Management (HRM) Automation Steering Committee
recently endorsed the attached HRM Automation Plan and requested
approval of the plan.  I fully concur and approve the plan and
recommendations identified in Section 9 of Volume 1.  This plan
provides a strategic direction and management strategy for
improving HRM services and information by increasing our
investment in information technology.  Implementation of the
Integrated Personnel and Pay System (IPPS) and other major
projects identified in this plan are important initiatives which
must be undertaken to achieve improved HRM service to agency
managers and employees.

If you have any questions regarding the attached plan, please
contact the Director of Personnel, APN-1, on FTS 267-9041.

Herbert R. McLure

Attachment

# Human Resource Management

# Automation Plan

## VOLUME I

## STRATEGIC PLAN

April 21, 1992

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The Federal Aviation Administration's (FAA) information systems are integral to its ability to meet its mission and the agency is faced with a critical need to manage information in the most effective and efficient way possible.

This document is an outgrowth of concepts and ideas developed by the Human Resource Management (HRM) Automation Working Group under the leadership of Mr. Kenneth D. Macomber and the sponsorship of the HRM Automation Steering Committee.

\* \* \*

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## EXECUTIVE SUMMARY

The Human Resource Management (HRM) Automation Plan provides a formal, objective method to manage information system priorities without regard to provincial interests. The Plan describes a comprehensive approach to providing the Information Resource Management (IRM) services needed to support the HRM community.

Volume I of the Plan identifies the fundamental HRM business processes and describes the technical architecture which is intended to guide all development. This integrated architecture incorporates the features of OATS, CORN, IPPS, and other planned projects. Volume II of the Plan contains a set of specific recommendations for tactical action including approved projects, estimates for required resources, project schedules, and the relevant budget information.

The HRM Automation Steering Committee (ASC) was formed in December of 1990 to provide management oversight to the HRM automation environment. The HRM Automation Working Group was formed to develop a plan in support of the ASC. The result, this HRM Automation Plan, will be reviewed annually, and changes will be made each year to reflect the status of ongoing initiatives and to describe new initiatives.

The HRM executives met at the FAA Center for Management Development and developed the following mission statement.

> *"Provide LEADERSHIP and EXPERTISE for continually improving the management of FAA's human resources and provide high quality SERVICE so the agency can fulfill its mission with an effective, efficient, diverse and progressively managed workforce."*

In order to support the HRM mission, a rigorous HRM IRM program is needed. A basic tenet of the HRM IRM program is that data is a corporate resource. Data must be planned for and controlled just as we manage other resources. Integrating automation planning with business planning will maximize the effectiveness of automation expenditures.

The Plan focuses on the broad goal of across-the-board support to HRM strategic planning and operation program implementation processes at all agency organization echelons.

A vision statement capturing this broad goal has been formulated:

> *"The FAA shall implement and maintain a human resource information system that provides accessible timely information throughout the agency and beyond through the use of a corporate relational database which is usable, relevant, consistent, flexible and secure by the year 2001."*

The basis for achieving this vision is a comprehensive plan grounded in thorough analysis and sound technical tenets.

The HRM IRM Plan supports the following automation goals:

- Manage Human Resource Management (HRM) data as a corporate resource that is shared throughout the FAA as required.

- Increase data standardization, integration, reliability, relevance, currency, accessibility, accuracy, consistency, and timeliness.

- Increase FAA personnel productivity through reduction of paperwork, efficient work processes, and one time entry of data at its source.

- Ensure that FAA HRM data and information systems are secure and private.

- Provide automated systems capable of accommodating change. This includes adapting to changes in organization, business processes, data requirements, and technology, where feasible.

- Provide automated systems which will support effective HRM decision making.

Problems will emerge as the agency workforce evolves, the mission workload expands, and technology advances. However, this Plan provides the means to implement cost-effective improvements in customer support and HRM workforce efficiency, as well as to assure the integrity, reliability, and security of sensitive HRM data.

# 1.0
# INTRODUCTION

## 1.1 PURPOSE.

The Plan is intended to provide a formal, objective method for management to establish and control information systems priorities without regard to provincial interests. This Plan provides a framework for planning, approval, oversight, and evaluation of projects and initiatives. This Plan is to be used to guide the development of systems that have a long life, to promote the efficient and effective use of information resources to support business goals, and to promote the management of data as a corporate resource that can be appropriately shared throughout the FAA. The Automation Plan is divided into two volumes. The first volume, the strategic plan, provides an overview of the current Human Resources Management (HRM) environment. Volume I also includes insight into the future direction of Information Resource Management (IRM) in the FAA. The second volume, the tactical plan, provides an overview of existing, planned, and proposed HRM automation projects and initiatives to be accomplished within the next five years. Volume II is intended to be a living document and will receive annual updates by the Automation Working Group prior to the submission of the annual FAA IRM plan (IRMP) update.

## 1.2 SCOPE.

This Plan addresses all HRM business processes and data. The HRM functions reviewed for the Plan include: position management, staffing, personnel management, employee relations, training, labor relations, drug program, Equal Employment Opportunity, retirement, safety, recruitment, benefits, and budget. This Plan does not address time and attendance, leave processing, and payroll processing since they are not part of the current HRM charter. The proposed departmental level Integrated Payroll Personnel System (IPPS) will include these functions in its view.

## 1.3 BACKGROUND.

On December 19, 1990, the Associate (now Assistant) Administrator for HRM established the HRM Automation Steering Committee (ASC). The ASC was formed to provide management oversight to the HRM automation environment. The ASC endorsed a strategy for developing an annual HRM Automation Plan and called for the formation of an Automation Working Group (AWG), whose main goal is to develop the Automation Plan and assist the ASC in securing approval of the Plan from AHR-1.

**2.0
DIRECTIONS, GOALS, AND TRENDS**

## 2.1    THE FUTURE OF FEDERAL HUMAN RESOURCE MANAGEMENT.

Human Resource Management in the FAA will be subject to a number of factors and forces common to all Government agencies.   A Government-wide consensus, on the nature of the future HRM challenges, led to the formulation by the Office of Personnel Management (OPM) of the *"Strategic Plan for Federal Human Resource Management"* in the Fall of 1990.   Factors and forces influencing future HRM Goals and Strategies, as identified in OPM's Strategic Plan, are shown in Figure 2-1.

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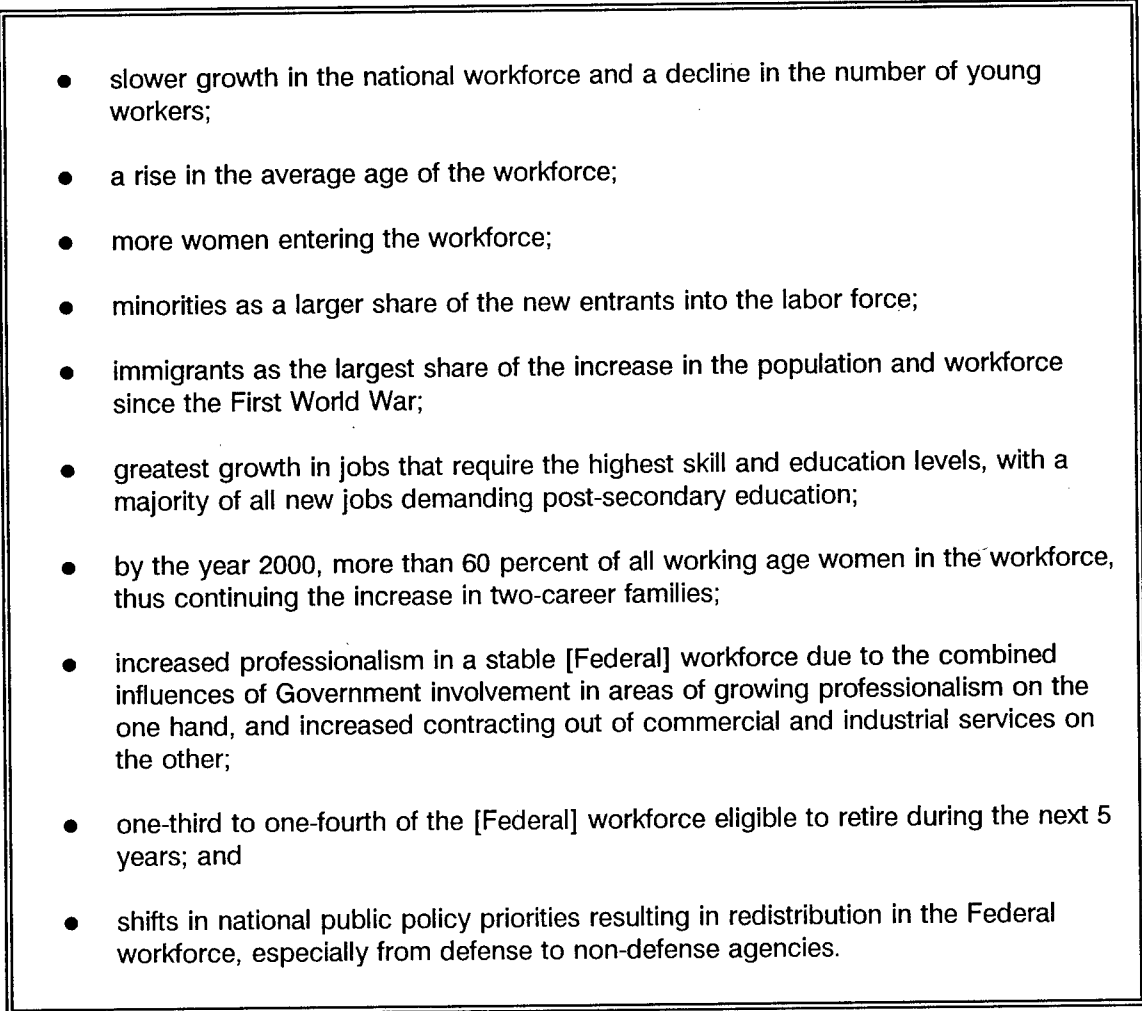
- slower growth in the national workforce and a decline in the number of young workers;

- a rise in the average age of the workforce;

- more women entering the workforce;

- minorities as a larger share of the new entrants into the labor force;

- immigrants as the largest share of the increase in the population and workforce since the First World War;

- greatest growth in jobs that require the highest skill and education levels, with a majority of all new jobs demanding post-secondary education;

- by the year 2000, more than 60 percent of all working age women in the workforce, thus continuing the increase in two-career families;

- increased professionalism in a stable [Federal] workforce due to the combined influences of Government involvement in areas of growing professionalism on the one hand, and increased contracting out of commercial and industrial services on the other;

- one-third to one-fourth of the [Federal] workforce eligible to retire during the next 5 years; and

- shifts in national public policy priorities resulting in redistribution in the Federal workforce, especially from defense to non-defense agencies.

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Figure 2-1,  Significant Factors Influencing HRM Goals and Strategies

The OPM Strategic Plan supports the achievement of the following goal:

*"The goal of the Federal human resource management system is to create a responsive system that enables each agency to attract, develop and retain a quality and representative workforce needed to accomplish its unique mission."*

The goal statement compels the adoption of the concepts of the *"quality"* candidate and *"quality"* employee as primary points of perspective, with efficiency and quality control of the HRM system as supporting factors.

The OPM Strategic Plan recognizes the need for complementary strategies among OPM and agency personnel offices in order to reach the goal. The principal elements of the strategy are to:

● improve job information and recruitment; and

● improve the Federal Government's competitiveness on each of the five factors which generally influence individuals to accept job offers, as shown in Figure 2-2 below.

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● Opportunity to *"belong"* to a highly regarded work group that performs challenging and important work;

● Competitive and fair compensation;

● Opportunity for professional growth and development;

● Opportunity to influence work assignments and work processes, to make an individual difference; and

● An environment which respects the individual, provides due process, and protects the individual from discrimination, retaliation, harassment, partisan political pressures, and other conflicts.

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Figure 2-2, Factors Influencing Job Offer Acceptance

Additionally, the plan's strategy asserts that supporting efforts are needed to improve the efficiency of personnel operations and the quality control of the Federal human resources management system.

## 2.2    HRM MISSION AND GOALS.

The FAA's Human Resource Management Executives met at the Center for Management Development (CMD), in June of 1991, to consider a broad spectrum of agency HRM issues, and to formulate approaches to them which are consistent with the OPM Strategic Plan. The following Human Resource Management Mission Statement was developed. It describes the current direction and focus of the Human Resources community.

> *"Provide LEADERSHIP and EXPERTISE for continually improving the management of FAA's human resources and provide high quality SERVICE so the agency can fulfill its mission with an effective, efficient, diverse and progressively managed workforce."*

The Human Resource Management Team proceeded to identify a set of broad goals for the future which are essential to the support of the HRM mission.

The goals are:

- To develop a skilled, effective, diverse workforce

- To encourage and develop collaborative, participative processes throughout the agency

- To support and develop effective planning, transition, and implementation activities.

## 2.3    HRM OBJECTIVES AND STRATEGIES.

It is necessary to understand the objectives and strategies of the HRM community in order to effectively use automation to attain the HRM goals. It should be noted that an underlying factor in most of the HRM objectives and strategies is a need for accurate and timely information to support managerial decisions. It is therefore essential to design and implement an automation environment which supports the collection and processing of information crucial to the attainment of the HRM goals. The HRM objectives and strategies are presented in Figure 2-3, HRM Objectives and Strategies.

**Figure 2-3, HRM Objectives and Strategies**

| | Objectives | Strategies |
|---|---|---|
| To support and develop effective planning, transition, and implementation activities. | • do not duplicate efforts.<br>• improve evaluation program.<br>• reward effective planning, not crisis management.<br>• incorporate legislative process into planning and implementation processes. | • coordinate planning and evaluation efforts with other organizations.<br>• bring together those who are doing the work to share with those who are not yet involved in the process.<br>• publicize and acknowledge examples of good planning, implementation, and evaluation.<br>• reward with increased resources - dollars and FTEs - and bonuses for those who do effective planning, implementation, and evaluation.<br>• ensure HR data is stored and used on an integrated system that is accessible to all organizations.<br>• develop an FAA legislative agenda. |
| To encourage and develop collaborative, participative processes throughout the agency. | • accept and use participative and collaborative processes necessary throughout the agency.<br>• throughout the FAA, when programs impact one another, understand and appreciate the respective roles and responsibilities.<br>• expand employee involvement. | • expand employee involvement to other parts of the organization.<br>• evaluate the effectiveness, success, and cost efficiency of collaborative processes and change as needed.<br>• issue agency order and policies on employee involvement.<br>• expand training in participative skills and collaborative processes for managers, supervisors, facilitators, and employees.<br>• reward and showcase effective collaborative behavior.<br>• use collaborative process to develop agency objectives.<br>• change management focus within FAA from upward to outward and downward. |
| To develop a skilled, effective, diverse workforce | • diversify workforce, including top levels of management.<br>• train supervisors and managers to manage more effectively.<br>• reduce training downtime.<br>• improve training methods.<br>• offer increased employee benefits, such as flexplace, flextime, job sharing, etc.<br>• improve quality of work environment.<br>• train employees for emerging technology. | • target recruitment to attract more diverse selection of applicants.<br>• retain employees with improved benefits and better working conditions.<br>• take full advantage of promotion programs such as CDP and SIDP.<br>• assess current supervisor and manager training in relation to diversity issues and identify weaknesses in the program.<br>• implement improved diversity training.<br>• reward managers for increased efficiencies in workforce management.<br>• achieve efficiency through cooperative programs with universities and industry.<br>• continue to develop and use the most effective training devices. |

## 2.4    AGENCY INFORMATION RESOURCE MANAGEMENT GOALS.

Information Resource Management (IRM) concepts and activities are predicated on the tenet that information is a basic organizational resource, and that data (the building blocks of information, as well as the systems housing the data) can and should be planned for and controlled just as is done for personnel, finances, and facilities.

In the FAA, IRM policies and procedures are specified by FAA Order 1370.52C (Feb 1991). The order addresses long term strategic and short term tactical planning, procurement policies, system review and rejustification, and the roles and responsibilities of officials and offices in the management of information resources.
Agency IRM planning was formally initiated in 1983 and currently results in the periodic publication of a two volume IRM Plan, with Volume I addressing strategic issues, and Volume II dealing with tactical system development and implementation. These documents address agency automation concepts, which include the following:

- User operated equipment shall be placed at a point of ready access, usually in the user's office.

- The organizational and/or geographic placement of ADP equipment shall not affect users of the systems.

- The technical operation and maintenance of supporting ADP equipment shall be carried out in a manner that is transparent to the users of the information systems.

- All user and technical use of ADP equipment, software, and communication resources shall be in conformance with appropriate Federal regulations and FAA policies, standards, and procedures.

- ADP equipment, software, and communication facilities shall be given appropriate security to guard against unauthorized access, use, and physical hazards.

- All ADP equipment, software, and communication facilities acquired by FAA shall be in conformance with standards that assure full and free interchangeability of data.

- The ADP equipment, software, and communication facilities provided to support agency information requirements shall be used for a variety of applications. Exceptions shall be made only for truly unique requirements such as the use of proprietary processes, special graphic systems, audio response capabilities, etc. for which commercial timesharing or dedicated equipment may be authorized.

- Knowledge based systems should be introduced to improve accuracy and consistency of processes and improve performance level staffing.

- Uniformity of processes, equipment, and support services shall be sought as a means to improve FAA-wide effectiveness of automation usage.


## 2.5    HRM IRM AUTOMATION GOALS.

The IRM activities of the HRM community are intended to be supportive of the broader agency (and Departmental) efforts, and the HRM Automation Plan is formulated to be implemented in concert with other agency automation initiatives.    The HRM Plan focuses on the broad goal of across-the-board support to HRM strategic planning and operational program implementation processes at all agency organizational echelons.

A vision statement capturing this broad goal has been formulated:

> *"The FAA shall implement and maintain a human resource information system that provides accessible timely information throughout the agency and beyond through the use of a corporate relational database which is usable, relevant, consistent, flexible and secure by the year 2001."*

Specific goals for HRM automation have been defined as follows:

- Manage Human Resource Management (HRM) data as a corporate resource that is shared throughout the FAA as required.

- Increase data standardization, integration, reliability, relevance, currency, accessibility, accuracy, consistency, and timeliness.

- Increase FAA personnel productivity through reduction of paperwork, efficient work processes, and one time entry of data at its source.

- Ensure that FAA HRM data and Information Systems are secure and private.

- Provide automated systems capable of accommodating change.    This includes adapting to changes in organization, business processes, data requirements, and technology, where feasible.

- Provide automated systems which will support effective HRM decision making.

- Provide automated systems compatible with the agency-wide architecture.

## 2.6    IRM STRATEGIES.

Satisfactory progress toward the HRM automation goals is dependent on the formulation and adoption of a coherent IRM strategy. The strategy must contain elements to address the multiple dimensions of the challenge: organizational, functional and technical. Elements of the strategy oriented toward the organizational and functional dimensions of the goals are to:

- Objectively manage and control HRM Information Systems (I/S).

- Develop HRM I/S based upon business processes. Protect the FAA's investment in systems that have a long life.

- Use automated modelling to improve the quality of HRM decisions.

- Increase top management commitment and support for HRM I/S by integrating HRM automation plans into the business planning and budgeting environment.

- Increase communication and education in order to promote a better understanding and awareness of HRM automation initiatives and benefits.

- Use automation to enforce FAA HRM policies and practices and to adhere to regulatory direction.

Elements of the strategy which are technically oriented are:

- Develop, use, and enforce standards (technical, data, and documentation).

- Implement user friendly systems with common user interfaces.

- Fixed data responsibility.

- Single source and parallel distribution of data.

- Central control and planning of information systems.

- Organizational independence of data.

● Resource sharing of data, equipment, and communications.

Recapitulating, HRM automation systems will be based on business processes, be organization independent, be built on a data centered technical base, and adhere to a well defined and enforced set of technical standards.

## 3.0
## PLANNING CONCEPTS, METHODOLOGY, ASSUMPTIONS, AND CONSTRAINTS

### 3.1    BUSINESS SYSTEMS PLANNING CONCEPTS.

Business Systems Planning (BSP) is a methodology developed by IBM and used to define the short and long term needs of a business or organization. This Plan makes extensive use of the BSP approach to provide the analytical framework necessary to attain a complete assessment of the HRM automation environment. The basic steps to the BSP approach are displayed in Figure 3-1, BSP Methodology.

The basic BSP concepts are that an information system (I/S) must support the agency's goals and objectives, should provide consistency of information throughout the organization, and should be able to survive through organizational and management change. Also, an (I/S) strategy should address the needs of all levels of management and should be implemented project-by-project to support the total information architecture.

The BSP methodology begins with the premise that data processing efforts must be aimed at satisfying overall organizational needs rather than simply supporting disparate individual functions. The paramount objective of the BSP process is to construct an information systems plan that supports the agency's short and long range needs and is an integral component of the agency's business plan.

Use of the BSP methodology results in the creation of an overall information systems architecture and the development of a prioritized set of recommended application automation projects. This methodology is based on the actual business processes which are performed by the agency. In a BSP study, a team analyzes the organization's goals, objectives, mission, and functions to develop business process statements and data class definitions. Processes are activities that take place, and data classes are groups of data that are used during the activities. Information is also gathered about current problems, and current information systems. The focus of the BSP study is quite broad, with 30 to 60 processes used to describe all of the activities of the organization. The team then develops a report which describes a recommended information architecture, along with recommendations for the implementation of specific high payoff projects supporting the architecture.

In preparation for this plan, the HRM analysis team reviewed extensive agency requirements documentation, as well as documentation describing existing and planned systems, including the latest available agency Information Resources Management Plan (circa 1989). Additionally, agency organization and functions documents (1100.2C and 1100.5C) were reviewed for insight into business functions.

SYSTEMS
DATA

STRUCTURE
DATA

FUNCTION
DATA

STUDIES

HRM
AUTOMATION
PLAN

DERIVE BUSINESS
PROCESS LIST AND
DATA CLASS/
ENTITY LIST

DEVELOP
PLAN

DEVELOP MATRICES,
LIST PROBLEMS

DEVELOP SYSTEM
PROJECT LIST
TO MEET SHORT-
FALLS

DEVELOP
INFORMATION
ARCHITECTURE

IDENTIFY
SHORTFALLS

MAP SYSTEMS
TO ARCHITECTURE

SYSTEMS
DATA
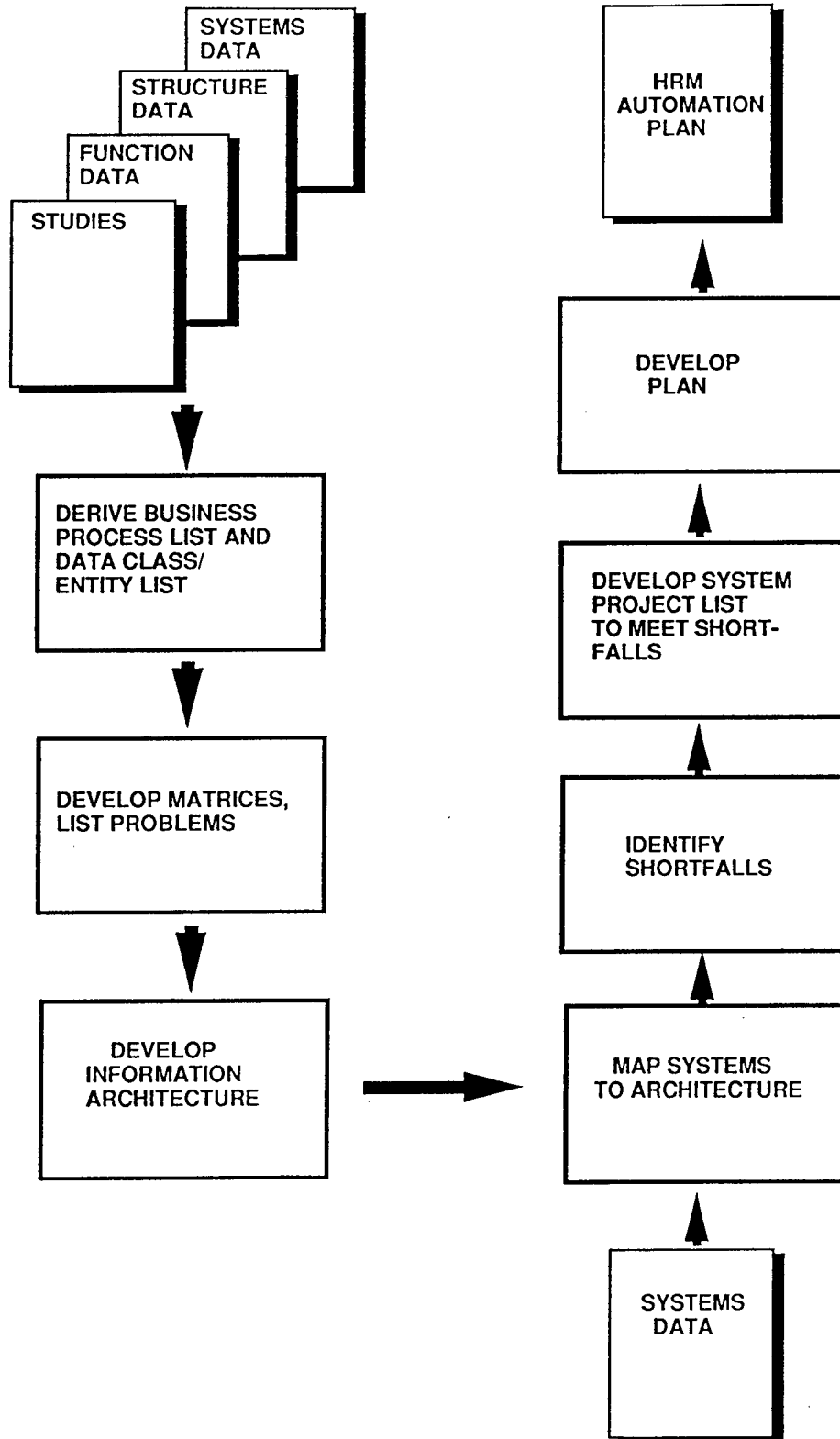
Figure 3-1, BSP Methodology

The team determined that the best point of departure for developing a comprehensive list of the business processes of the Human Resources environment was the IPPS Core Requirements Document (Draft, October 1, 1990). The document treats the HRM environment broadly, albeit largely from a financial automation perspective.

A *"reverse engineering"* approach was used to summarize the requirements and recast them as business process statements. The agency orders referenced above were used as cross references. The Training Management Information System (TMIS) requirements document was used to provide a comprehensive view of training requirements.

The processes were summarized again, and organized in the BSP resource management context. The BSP method for identifying business processes is to take each of the key business resources through stages associated with the life cycle of the resource. The four stages for personnel, the main resource of the HRM community, include requirements identification, hiring, management, and termination. Finally, an entity/data list was developed based upon a thorough analysis of the processes.

## 3.2    PLANNING ASSUMPTIONS.

There are a number of assumptions which need to be considered when reviewing the Automation Plan. These assumptions may have a significant impact on the Plan and HRM automation projects. The assumptions are that:

- The HRM Automation Plan will be used and it will be compatible with the automation planning and operational efforts of the other DOT modal agencies.

- There will be continuing top HRM management commitment in terms of support and resources.

- CPMIS will remain the agency's personnel system for the next several years and will eventually be replaced by IPPS.

- IPPS will be at the core of HRM automation, will reside on CORN, and will have a decided effect on any future HRM automation plans.

- CORN will provide the platform for the agency's large information systems.

- ADTN and FTS2000 will provide the communication backbone for the FAA and will be used to provide wide area networking capabilities.

- The regions will discontinue use of the Data General minicomputers by 1995 and will replace them with suitable LAN servers.

- There will be a workstation with communication capabilities on every desk in AHR and on most HRM desks throughout the agency. New workstations and LANs will be obtained under the OATS contract.

- End users will have ready access to data analysis tools and the HRM databases.

- There will be cooperation from the non-HRM community.

- HRM reorganizations will not materially effect the Plan.


## 3.3    PLANNING CONSTRAINTS.

As with the assumptions, there are a number of constraints which need to be considered when reviewing the automation plan. These constraints could potentially reduce the effectiveness and utility of the Automation Plan and, therefore, must be factored into any decisions effecting the future of HRM automation.

The planning constraints are as follows:

- There is significant uncertainty as to specifics of the IPPS project.

- The information architecture presented in this Plan needs to be consistent with the Office of Information Technology's (AIT) System Architecture plans.

- There will be continuing position and monetary constraints.

- While efforts continue toward standardization, that standardization will not be total, nor will it be quickly realized.

- There is limited flexibility of internal administrative processes coupled with procurement vehicles that are unresponsive to technological and market changes.

- There is organizational resistance to change along with an unwillingness of users to take responsibility and ownership of automation capabilities.

## 4.0
## HUMAN RESOURCE MANAGEMENT BUSINESS PERSPECTIVE

### 4.1 FAA ORGANIZATIONAL ENVIRONMENT.

The FAA consists of two basic administrative levels and four special complexes. National headquarters in Washington, D.C. is responsible for agency-wide program planning, direction, control and evaluation, and the management of program activities. The regional headquarters are responsible for logistics, accounting where appropriate, management systems, airports, public affairs, communications control, civil rights, human resource management, planning and appraisal.

National programs are managed from Washington headquarters and program services are provided by the region. The national programs include aircraft certification, flight standards, aviation medical, airway facilities, air traffic, civil aviation security, and legal.

The four special complexes are: the Aeronautical Center in Oklahoma City, the FAA Technical Center in New Jersey, the Europe-Africa-Middle East Office in Brussels, Belgium, and the Aviation Standards National Field Office in Oklahoma City.

### 4.1.1 Washington Headquarters Environment.

There are currently four offices which compose the Washington Headquarters human resources management organization: Human Resources Development, Personnel, Higher Education and Training, and Labor and Employee Relations. Each of the four offices is uniquely tasked to fulfill the AHR Mission.

The Office of Human Resource Development, AHD, serves as the principal organization responsible for achieving human resource development and optimal decisionmaking in the management of human resources. AHD fulfills its mission by developing, recommending, guiding, evaluating, and administering policies, standards, procedures, and systems for, not only the development of organizational systems, management practices, managers, and employees, but also for strategic planning, policy planning integration, and research.

The Office of Personnel, APN, serves as the principal FAA organization responsible for achieving optimal and equal opportunity use of position and human resources. APN achieves its mission by developing, recommending, guiding, evaluating, and administering policies, standards, procedures, and programs for managing positions, acquiring human resources, managing compensation, and utilizing human resource management information systems.

The Office of Training and Higher Education, AHT, serves as the principal FAA organization responsible for developing policies, programs, standards, systems, and procedures for human resource technical training activities which include: new equipment training, attrition training, training needs assessment, instructional technology, curriculum design, and research and planning as may be required to ensure technological currency of agency technical training programs.

The Office of Labor and Employee Relations, ALR, serves as the principal organization responsible for achieving optimal relationships with employees, employee groups, and labor organizations. ALR fulfills its mission by developing, recommending, guiding, evaluating, and administering policies, standards, procedures, and systems with respect to employee benefits, adverse actions, grievances and appeals, and conduct and discipline, and with respect to labor organizations, professional societies, and organizations of supervisors and managers.

### 4.1.2 Regional and Center Environment.

FAA headquarters, and each region and center, has a Human Resource Management division which serves as its principal servicing organization on all matters pertaining to human resource management. The HRM divisions are responsible for employment, position and pay policy, training, labor and employee relations, human resource planning, evaluation and human resource effectiveness.

While the focus at the Washington level is primarily strategic, at the regional, center and headquarters division level the focus is more oriented toward management and day-to-day operations. The bulk of the contact with the HRM customer community (particularly employees and national program providers) is managed and provided by the region and center HRM offices.

The non-straightlined nature of the HRM community has, in the past, made the development and adoption of standard automation practices and procedures somewhat difficult. The development of this Plan is a significant step in the direction of identifying common problems and defining a community approach to their solution.

## 4.2 BUSINESS PROCESSES.

Business processes are defined as groups of logically related decisions and activities required to manage the resources of the agency. Processes are studied and classified irrespective of organizational responsibility. Carefully defined processes serve as the basis for a BSP study and lead to:

- information systems that are independent of organizational change

- an understanding of how the business accomplishes its missions and objectives

- a basis for defining the information architecture, determining its scope, making it modular, and setting priorities for its development

- a basis for defining key data requirements

The HRM business processes used for this study were compiled from three main sources: The IPPS Core Requirements Documents, Order 1100.2C, and selected interviews with HRM personnel. These processes evolved through several iterations which transformed them from short, nondescript ADP process statements to well defined, functional process statements which clearly describe the activities of the HR community.

The processes were grouped together in functionally distinct categories. Eight separate groupings were arrived at and are displayed in Figure 4-1, HRM Business Process Groupings. Figure 4-1 displays a basic tenet of the Plan that Human Resource Management is data centered and is dedicated to serving the needs of the user.
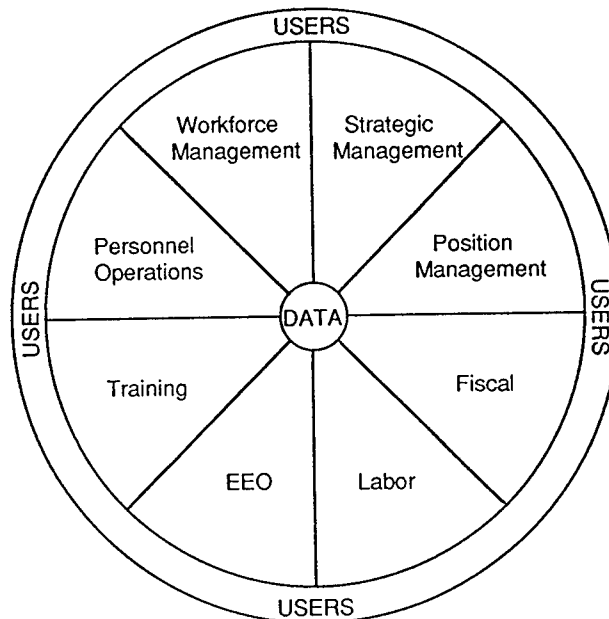


Figure 4-1, HRM Business Process Groupings

The Strategic Management group deals with long range planning issues central to the management and direction of the HRM community. The Fiscal group is primarily concerned with budget matters. Workforce Management, Position Management, Personnel Operations, Training, EEO, and Labor are concerned primarily with the management and operational control of positions, and the employees who fill the positions. Appendix B should be referred to for complete process definitions.

## 4.3 RELATED PROBLEMS/OPPORTUNITIES.

Problems which are potential obstacles to automation progress exist in a number of areas. The problems are not atypical of those found in other agencies and they can be viewed as challenges and potential opportunities as much as hindrances.

Organizationally, a number of factors present challenges. Frequent reorganizations occur within the agency and, therefore, the HRM information systems of the future must not be dependent on a particular HRM or line organizational structure. Changes in the agency organization, plus changes in mission performance technology (e.g., the Capital Improvement Program), result in changing customer demands on HRM for services and support. This also suggests the requirement for great flexibility in HRM automation.

As was discussed in Section 2-1, significant changes will occur in the makeup of the agency workforce. These changes will result in greater demands on the HRM environment for efficient, effective operations.

In spite of organizational workforce evolution, the expectation is for very flat resource levels for the foreseeable future. This will place great emphasis on the use of cost-effective methods to provide services.

Finally, there is fragmentation and duplication of applications due to inadequate attention to the infrastructure and resources supporting the HRM community. However, the situation is improving through a variety of initiatives. This HRM Automation Plan is one attempt to address existing problems. Three other initiatives are in progress and will be coordinated: the Computer Resource Nucleus (CORN), the Office Automation Technology and Services (OATS), and the Integrated Personnel Payroll System (IPPS). A major FAA Systems Architecture initiative is underway, and technical standards, as well as standardized support capabilities such as software release, configuration management, and user support, are being addressed.

## 4.4 BENEFITS EXPECTED.

The development and maintenance of an Automation Plan based upon the Business System Planning methodology will result in a stable IRM planning base for the HRM community. The approach provides a solid understanding of needs, an enduring, rational planning framework, and an incremental approach to change.

The HRM Automation Plan defines a conceptual architecture which will serve as a framework upon which new technical capabilities can be placed. These technical capabilities - hardware, software, and telecommunications - can be used to support business processes which today receive little or no automation assistance.

Information processing trade and industry publications constantly report on productivity improvements and paperwork reductions which accompany the implementation of automated systems.

> *"About ten years ago, it took 850 people to handle this flow of paper form. Now 650 people do the work with connections to Unisys Corp. 2200 series mainframes"* - Small Business Administration (Government Computer News, October 28, 1991)

> *"Agents who in the past had to consult printed manuals or microfiche from a nearby library can now call up text or detailed product schematics from their workstations, typically in under two seconds."* - Whirlpool Corporation (Computerworld, October 28, 1991)

> *"These (automated) systems have eliminated 800,000 pieces of paper coming into this division each year. We stopped counting at 800,000. We have reduced our staff from 47 to 30."* - National Science Foundation (Government Computer News, September 30, 1991)

We expect the HRM Automation Plan to result in: (1) Improved customer support, (2) Improved HRM workforce efficiency, and (3) Improved technical integrity, reliability, and user satisfaction.

## 5.0
## INFORMATION RESOURCE MANAGEMENT PERSPECTIVE

### 5.1    ORGANIZATIONAL ENVIRONMENT.

Responsibility for agency IRM rests with the designated agency Senior Management Official, SMO, currently the Associate Administrator for Information Technology, AIT-1. The SMO is supported by the Executive Resource Committee in order to ensure an agency-wide perspective on IRM matters.

For IRM issues, the Office of Information Technology (AIT) provides overall direction, management staff support, and advice and assistance to the SMO and other agency components. Overall technical direction and technical staff support for the full life cycle of automated information systems, including office automation and data communications, is the responsibility of AIT.

Each executive director, assistant administrator or associate administrator, the Chief Council, each regional administrator, and each center director designates an Information Resource Manager who represents the respective organization and carries out prescribed responsibilities. The Manager, HRM Automation Division, APN-100, has been designated HRM Information Resource Manager. Those broad responsibilities are shown in Figure 5-1, Information Resource Manager Responsibilities. Together, the Information Resource Managers make up the IRM Committee (IRMC) which participates in the development and review of agency-wide plans, policies, procedures, and standards. Information Resource Managers are also responsible for leadership and direction in Office Automation efforts and oversight of the planning for system development, installation, and support. Further, vertical and horizontal coordination with other Information Resource Managers is also a significant responsibility.

The development and operation of automated information systems is performed under the auspices of a designated Office of Primary Responsibility (OPR). Actual acquisition and/or development of automated information systems is the responsibility of the Program Office Project Managers, who exercise their responsibilities in coordination with the appropriate Information Resource Manager. Responsibility for the ongoing operation of systems is the responsibility of Data System Managers.

In 1989, an HRM IRMP Order was drafted but not implemented, and in 1990 the ASC was formed to focus top level attention on the IRM needs of the community. In December of 1990 the ASC endorsed a strategy for developing an annual HRM Automation Plan. The strategy was accepted by the Associate Administrator for HRM. A working group was formed to support the ASC in the preparation of the Plan, and this Plan is a result of working group activity.

As an individual Information Resource Manager, the designee is responsible for:

(1) Serving as the focal point for all IRM activities within their respective organization/program office;

(2) Developing and maintaining strategic plans and providing guidance on tactical plans for all organizational elements they represent;

(3) Coordinating and integrating IRM requirements with the agency budgetary process and monitoring the financial aspects of information resources activities within assigned program/organizational areas;

(4) Facilitating the effective use of information resources;

(5) Approving the acquisition of hardware, software, and related services within the authority delegated by the SMO and their executive director, associate administrator, assistant administrator, chief counsel, regional administrator, or center director (and, in the case of regional and center IRM's, within the authority delegated by each headquarters IRM);

(6) Ensuring compliance with the FIRMR for hardware, software, and services-related acquisitions covered by the FIRMR;

(7) Identifying, updating, and tracking IRM projects and activities;

(8) Assisting in conducting project reviews and triennial reviews of individual automated information systems;

(9) Assisting program organizations in identifying program requirements for automated information systems;

(10) Maintaining accuracy and validity of the IRMP database (refer to chapter 3 for further information on the IRMP database;

(11) Providing guidance to and consulting with the OPR in obtaining resources to implement and maintain operations of new information systems;

(12) Providing advice and assistance in designating project managers to conduct and oversee development systems work and advice and assistance in designating Information Systems managers for managing ongoing systems and operational work assigned to their organization; and

(13) Identifying, reviewing, and coordinating applications of local systems which may be useful to other regions, centers, offices, and services and facilitating the sharing of local systems which are in use at more than one office, service, region, or center.

Figure 5-1, Information Resource Manager Responsibilities

## 5.2 TRENDS IN INFORMATION TECHNOLOGY.

Information Technology may be loosely grouped into three categories: hardware, software, and telecommunications. The telecommunications environment is, of course, composed of both hardware and software components. Technology in all three of the designated categories is evolving at something more than a linear rate.

### 5.2.1 Hardware

Hardware changes are typified by the dramatic improvements in processor speed, and circuit and storage density. The combined effect of these factors has resulted in the ability to put yesterdays mainframe processing speed and storage capacity into desktop systems. Similar advances have occurred and are continuing to occur in input/output devices, including high resolution color graphic displays, mouse, light pen, and other alternatives to keyboard input, and dramatic improvements in both black and white and color printed output. Voice input will become a reality. Increased focus on imaging has resulted in great improvement in scanners and the use of optical disks. Advances in all of these areas can be expected to continue at an unabated pace throughout the coming decade.

### 5.2.2 Software

Software sophistication, reliability, flexibility, and power have increased dramatically in recent years, and these trends will continue. Support for data storage and manipulation, particularly in a distributed environment, will continue to improve. The availability of a large variety of software applications for use on personal computers is already high, and the availability of such software will continue to grow in the future. The emergence of a large and growing third party software development industry has freed the buyer from dependence on the hardware manufacturers. Efforts in the areas of *"object oriented"* design and development will eventually contribute to the emergence of solid standards for software interface and cooperation. New types of software will become available, including artificial intelligence applications. System embedded training will become commonplace, and higher level languages will replace today's norms.

### 5.2.3 Telecommunications

Telecommunications capabilities have evolved and will continue to do so at a rate equally as significant as that of the hardware and software categories. Transmission speeds are increasing while costs are decreasing. Multimedia transmission support is a reality. The evolution of both standards and products has led to a broad ability to interconnect products from different manufacturers, and interconnectivity will improve in the future. Wireless communications will become more commonplace, and the concept of flexiplace will be much more supportable.

## 5.2.4 Synergistic Improvements

The integration of smaller, faster hardware, readily available Commercial Off-The-Shelf (COTS) software, and accessible communications has led to extremely powerful office environment systems operating in a distributed mode. The development of graphic user interfaces (GUIs) combined with software designs for non-sophisticated users has led to a much more *"user friendly"* interface. These trends can be expected to continue. The combined effect of improvements in software, hardware, and telecommunications capabilities will support significant advances in system security and will also result in noticeable improvements in ergonomics.

## 5.2.5 Government Trends

The revolutionary developments in ADP of the past decade (characterized by an explosion of micro-computer based hardware advances together with the development of a huge independent software development community) have resulted in further aggravation of a long standing problem area - that of technical standards. The Government is responding to this challenge in a number of ways, but two complimentary trends stand out. The first is the move toward omnibus contracts for the acquisition of micro-computers and associated office automation software, thus creating de facto standards within agencies. The second trend is the definition and advocacy of Government-wide standards for system interconnection and compatibility (e.g., GOSIP (Government Open Systems Interconnection Profile).

Numerous Government agencies are involved in addressing the challenge. The primary focus is at the National Institute of Standards and Technology (NIST), but many other organizations, including GSA and OMB are working diligently on parts of the overall problem. The coming decade will see some significant improvements, and this Automation Plan includes specific recommendations to stay abreast of the events.

## 5.2.6 Specific FAA Impacts

Virtually no organization, large or small, can stay constantly on the cutting edge of technology with its production automation systems. The typically lengthy procurement cycle combined with the need to amortize system costs over time leads to a cycle of sharp updates followed by gradual declines in technological timeliness. In larger organizations where demands for standardization are high, such as the FAA, the cycle can be quite long. As the average employee becomes more knowledgeable, and as the general state of the automation art is more widely understood, user expectations increase. The combination of CPMIS and DM/URL represent an instance of once up-to-date technology, which while still producing usable results, is out of step both with today's technology and with current user expectations.

The OATS procurement will put state of the art workstations (PCs) and LANs in the hands of more than 20,000 FAA users. The CORN procurement will modernize the large systems supporting the agency and the HRM community. Advances in the telecommunications capability will also be available through FTS2000. This combination of new technology will challenge the agency to develop modular systems that adhere closely to standards for open systems, so as to facilitate the insertion of new technology without the necessity for system redesign/rebuild. A good example is the objective of developing database environments which have both physical and logical independence from applications accessing the data.

The net result of the availability of new technology should be a significant improvement in the ability to support the basic business processes of the HRM community.

## 5.3    USER PROFILES.

Users of the HRM automation system are found in all FAA organizational levels, from national headquarters to small field sites. The organizational hierarchy used in the BSP analytical efforts supporting this Plan were as shown in Figure 5-2, Usage Categorization. As is suggested by Figure 5-2, system usage by supervisors, and potentially by employees themselves, will take place at all organizational levels.

While it is possible to broadly assert that the focus from top to bottom in Figure 5-2 progresses from a strategic to an operational view, this is not altogether true. There is broad involvement in mid and long range planning by many of the levels depicted.

At FAA National Headquarters, the principal users are the various AHR offices. The focus is long range and the data is typically aggregated.

The national program offices represent sources of data for users in strategic planning activities. If an effective workforce modelling capability is developed, the program headquarters could become customer/users of such capabilities. Access to training plan data would be of significant interest to these offices.

FAA training providers (the Academy and CMD) are significantly involved in the provision and use of training data for both long range planning and near term delivery purposes.

The use of the HRM automation system is most diverse and most intense at the regional level, where a broad spectrum of activities, from strategic planning to providing direct services to employees, takes place.

At the regional offices of national programs, there is considerable interaction and cooperation with the regional HRM office on a number of HR processes.

| ORGANIZATIONAL LEVEL | |
|---|---|
| S U P E R V I S O R / E M P L O Y E E | NATIONAL HEADQUARTERS |
| | SERVICE (PROGRAM) HEADQUARTERS |
| | TRAINING PROVIDER |
| | REGION |
| | SERVICE (PROGRAM) DIVISION |
| | FACILITY |
| | SUPERVISOR/EMPLOYEE |
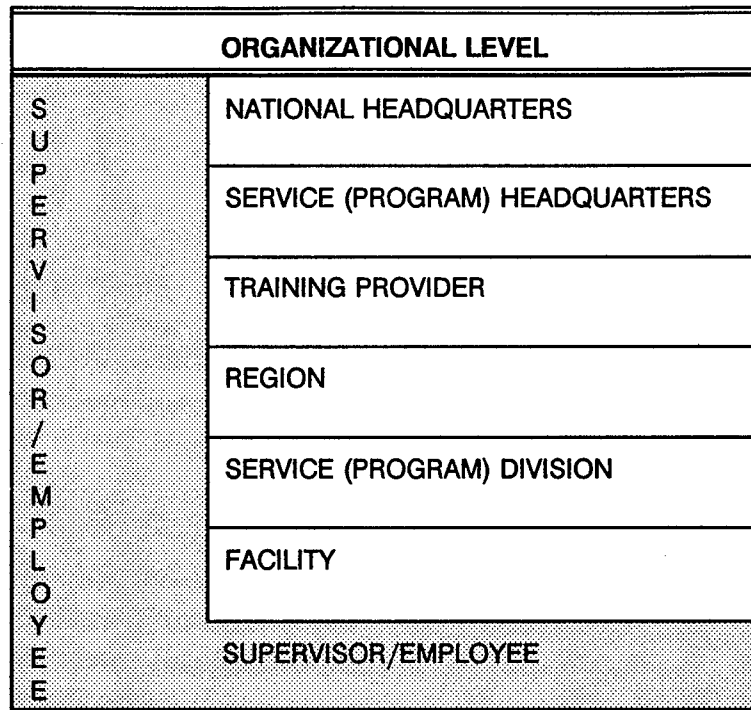
Figure 5-2, Usage Categorization

At the facility and supervisory levels, the concern is primarily day-to-day operational issues, although planning for training requires a much longer view.

In the future, system controlled direct access for employees to their personnel and payroll records should be feasible.

Various types of users may be present at each organizational level. Application programmers write standardized reusable routines which interact with the system databases through the Data Management Language (DML). Casual users are sophisticated users who interact with the system by formulating their own database queries. Routine users interact with the system by invoking previously written application programs. Data capture is performed in this manner. Finally, specialized users are those who require and develop unique applications and databases that do not fit into the normal framework. Special modelling activities are an example of this type of use.

Figure 5-3, Organization/Process Matrix, shows the relationship of the business processes described in Section 4.2 to the organizational levels of Figure 5-2. Note that the National Headquarters level has been expanded to show both the HR suborganizations and the Office of Civil Rights.

In general, today's users are members of the HRM community. In the future, usage will be expanded (based on technically up-to-date systems) to a broader community of users who have a legitimate business requirement to access specific data. A comprehensive user profiling capability will be present to restrict access to specific data and system capabilities. The expanded user community is expected to include more line managers, more FAA organizations, other government agencies, contractors, and employees themselves.

## HRM Business Processes

**I.    Position Management**

A.  Define individual positions including establishing and abolishing positions.
B.  Maintain position KSA data.
C.  Conduct annual classification review process. Support classification appeals.
C.  Maintain tracking systems for positions authorized by budget.

**II.   Strategic Management**

A.  Identify relevant laws and regulations.
B.  Establish HRM policies, programs, procedures, systems and standards
C.  Obtain workload data.
D.  Develop organizational structure and workforce level.
E.  Project future workforce needs based on: current workforce level, projected workload, projected attrition, organization structure, technical resource plans.
F.  Obtain technical resource plans.
G.  Project long range training requirements based on workforce skill level, changes in workforce, changes in equipment and services environment.
H.  Build long range plan.
H.  Estimate attrition.

**III.  Workforce Management**

A.  Conduct internal placement activities to track and fill vacancies.
B.  Manage performance appraisals and correct deficiencies. Process incentive awards, maintain standards, ratings and reviews.
C.  Provide career planning.
D.  Support EPGs.
E.  Monitor drug program.
F.  Track OWCP cases and costs.

**IV.   Personnel Operations**

A.  Conduct recruitment activities to fill vacancies.
B.  Process personnel actions (General process to encompass all actions leading to database update. Document preparation included.)
C.  Maintain position sensitivity data and clearance data. Comply with security regulations.
D.  Track leave data, compensatory time, religious observance, injury time, etc. at the supervisory level.
E.  Submit calculation parameters to payroll.
F.  Produce required external reports.

**V.    Labor**

A.  Maintain and make available, as required, data pertinent to union activity.
B.  Maintain tracking system for grievances and unfair labor practice claims.

**VI.   Training**

A.  Identify near term training requirements.
B.  Identify training resources.
C.  Develop annual training programs.
D.  Develop training courses based on identified needs.
E.  Implement training program and retain history data.
F.  Evaluate training effectiveness.

**VII.  EEO**

A.  Perform studies to identify EEO trends. Maintain EEO data.
B.  Track EEO complaints.
C.  Monitor EEO aspects of recruitment.

**VIII. Fiscal**

A.  Create budgetary estimates and roll-ups.
B.  Obtain budgetary feedback and approved budgets.
C.  Obtain fiscal performance data.
D.  Monitor fiscal performance against budget.

Figure 5-3, Organization/Process Matrix

Note: Refer to Appendix B, HRM Business Process Descriptions, for a detailed definition of the abbreviated process titles used at the top of the matrix.

Major responsibility and decision maker

X   Major involvement in process

/   Some involvement in process

## 5.4  SYSTEMS PROFILES.

The major HRM systems are profiled in the following paragraphs.

### 5.4.1  Current Systems.

CPMIS

The Consolidated Personnel Management Information System, CPMIS, was developed by the FAA between 1968 and 1975. CPMIS is a national personnel database management information system which contains the official data of record for the FAA. By 1987, CPMIS was expanded for use by all of the Department of Transportation and the National Transportation Safety Board. The principles of CPMIS include centralized data management, single update transaction, subject matter specialist control, ease of data entry, system flexibility and timely ad hoc report capability. CPMIS uses Data Management/User Request Language (DM/URL) as a DBMS and currently resides on the IBM 3090 in Oklahoma City.

CTTMS

The Centralized Training Travel Management System, CTTMS, is a system, brought online in FY91, to provide support for the management of centrally controlled training travel dollars. CTTMS receives enrollment information from CPMIS and receives financial information from DAFIS, the departmental accounting and financial information system. CTTMS should be fully functional by FY92, however future enhancements are planned.

EGATS

EGATS, Electronically Generated and Transmitted SF-52s, was developed by the Alaska region to improve the processing of personnel actions. EGATS is capable of creating, transmitting, reviewing, and tracking any personnel action that can appear on an SF-52 form. Once the personnel action is entered into the system, it can be transmitted via communication lines to the person responsible for completing the next step in the process.

EPAMS  (enhancement planned)

The Employee Performance Appraisal Management System, EPAMS, is a national AHR project to provide FAA supervisors with an automated approach to employee performance management. EPAMS will support the development, collection, storage, reporting, and analysis of employee performance related information. The three phases of the project are to provide software for a standalone personal computer, interface with the CPMIS, and support paperless performance appraisal systems. EPAMS is being

developed as a model HRM Automation Project. It is expected that the results of the EPAMS effort will serve as a valuable guide in the development of future national automation projects.

## LABOR RELATIONS CASE TRACKING SYSTEM

This system ensures consistency in the application of labor and employee relations policy and accesses case status. The system has a centralized case repository that permits the Office of Labor and Employee Relations (ALR) to nationally identify and track any currently existing unfair labor practice charges, grievances, or adverse actions. The system identifies strong and weak areas in collective bargaining agreements and better prepares the FAA to negotiate contracts with the unions.

## MATES/PETS  (enhancement planned)

The Personnel Employment Tracking System, PETS, was developed by Northwest Mountain region, while the Modular Applicant Testing, Examining, and Screening System, MATES, was developed by the Aeronautical Center. PETS tracks an applicant's status during the screening, testing, and interviewing process. The system is capable of printing standard inquiry letters of acceptance or non-selection. Interview information can be entered on a microcomputer and uploaded to the PETS system. PETS is the source and final destination of many of the data elements used in MATES. MATES is designed to enable faster security verification on *"fasttrack"* applicants, and can be thought of as a complement of PETS.

## MPP

The Merit Promotion Plan, MPP, is a stand-alone, personal computer system which uses data that has been scanned from application forms and produces selection lists for various air traffic staff and managerial positions.

## SIDP

The Supervisory Identification and Development Program, SIDP, is a process to identify employees, early in their careers, who have the desire and potential to become successful first line supervisors. SIDP is currently used by Air Traffic and Aircraft Certification to recruit new supervisors and is scheduled to be expanded to include Civil Aviation Security. The SIDP database resides on the regional Data Generals and consists of general employee and KSA data collected from CPMIS, EGATS, TRIMATE, and during the SIDP process.

SKYNET

FAA SkyNet is an application of the Caucus (Camber-Roth Inc) computer conference system. It was originally purchased to facilitate group discussions using automated teleconference technology. The system will incorporate several HRM bulletin boards.

TRIMATE (enhancement planned)

TRIMATE was developed by the Alaskan region. It allows field personnel to generate and track requests for Out-of-Agency training (Form 3000-3) or In-Agency Training (Form 3000-13) and electronically transmit them to regional training organizations. The system also allows authorized users to review employee training histories, see pertinent course data, receive and send messages, and enter/update data for the annual Call for Training Requirements.

## 5.4.2    Planned and Developing Systems.

FJOL

In conjunction with DOT and OPM, the FAA is participating in the Federal Job Opportunity Listing, FJOL, a vacancy announcement system. FJOL makes a listing of vacancy announcements available through a touch-screen system (kiosk) which lists all Departmental announcements that are nationwide, Government-wide, and within the local commuting area. This system is to be available to all nationwide sources.

IPPS

The Integrated Personnel/Payroll System, IPPS, is a current project which is designed to replace the automated capabilities of CPMIS and the Consolidated Uniform Payroll System, CUPS. IPPS is a major system which will address a majority of the functional areas of the HRM community. IPPS is tentatively scheduled to be brought fully online by 1996.

PREPS (in development)

The Personnel Reporting System, PREPS, is a national AHR project to provide FAA supervisors and managers with access to online personnel data. PREPS is designed to be an interim measure to increase reporting capabilities of CPMIS, the current personnel system. PREPS proposes to create a read only, shadow CPMIS database, using ADABAS/Natural as an alternative database management system to DM/URL. PREPS is designed to add a level of data security not currently available in CPMIS and will be capable of providing fixed, variable, and ad hoc reports.

TMIS

The Training Management Information System, TMIS, is an automated system designed to provide comprehensive data and support to the process of training management in the FAA. TMIS objectives are to provide timely training information and *"user friendly"* automation tools, automate the collection and reporting of training information, provide an integrated training database, embody all agency training information components, and reduce the administrative time needed to respond to internal and external requests for training related information. The TMIS functional requirements span the entire training cycle and include planning, development, implementation, and evaluation.

## 5.5 RESOURCE ENVIRONMENT.

Over a period of many years, the resources expended for IRM support to the Human Resources environment have been comparatively low. No major expenditures for nationwide improvement have been made since CPMIS was developed in the 1970's. The result has been gradual technological obsolescence. In recent years, two hardware oriented programs have been conceived (CORN and OATS) and both have been brought to fruition. They will provide much more up-to-date computing platforms. No corresponding major software initiatives have been funded, although the DOT initiative to modernize CPMIS and CUPS (the Integrated Personnel/Payroll System - IPPS) is growing closer to becoming a funded reality.

Significant expenditures will be needed over the next five or six years to harmonize the hardware and software initiatives mentioned, to develop additional badly needed software, and most importantly, to establish and maintain a management and administrative support structure to define and enforce standards, manage configurations, support standardized software, and continue the needed planning activities.

## 5.6 TECHNICAL ENVIRONMENT.

Figure 5-4 represents the Current Geo/Technical Architecture (the geographic distribution and relationship of hardware). The technology is, for the most part, dated, and the support provided to both HRM and non-HRM community users is not satisfactory, as has been documented in previous studies. The current limited number of terminals which can access CPMIS typifies the technical limitations, as does the lack of modern compatible DBMS software within the architecture. The Personnel Reporting System (PREPS) initiative exemplifies current efforts to make near term improvements.

The OATS contract will introduce modern personal computer hardware and software technology into the agency HRM automation environment on a large scale. Access to this capability, coupled with expected improvements in the central processing

environment (through either or both the IPPS and CORN initiatives), will allow large improvements in the quality of service. Figure 5-5, Future Geo/Technical Architecture represents the technical environment of the future. Note that the DBMS environment should be compatible from top to bottom through the use of relational SQL database management systems.

Figure 5-6, Current HRM Application Environment, shows the architecture of applications which currently exist. The principal application system supporting the HRM community is CPMIS, the mainframe system operated in Oklahoma City. Access to the system is as shown in Figure 5-4, Current Geo/Technical Architecture, the depiction of the geographical distribution and relationship of the principal hardware components. The five CPMIS subsystems are shown in Figure 5-6. Also operating at the national level is CTTMS, which tracks training travel expenditures. The large nationally used systems which support other agency functions (e.g., DAFIS) are also represented in Figure 5-6, together with their relationship to CPMIS.

| LEVEL | SYSTEMS | DBMS |
|-------|---------|------|

NATIONAL — DATA GENERAL, PC, CPMIS TERM., IBM MAINFRAME OKLAHOMA CITY, PC, ADTN

DBMS: DG COBOL and DG database; DM/URL (Agency Unique); PC-oriented, e.g. dBase III

REGIONAL, AERO CTR, ACADEMY — CPMIS TERM., DATA GENERAL, PC

DBMS: DG COBOL and DG database; PC-oriented, e.g. dBase III

LOCAL — PC

DBMS: PC-oriented, e.g. dBase III

Figure 5-4, Current Geo/Technical Architecture

| LEVEL | SYSTEMS | DBMS |
|---|---|---|
| NATIONAL | NATIONAL SERVER — LAN — OATS / CORN MAINFRAME / ADTN/FTS2000 | RELATIONAL SQL |
| REGIONAL, AERO CTR, ACADEMY | LAN — OATS / OATS / REGIONAL SERVER / OATS | RELATIONAL SQL |
| LOCAL | LAN — OATS / LOCAL SERVER / OATS | RELATIONAL SQL |

Figure 5-5 Future Geo/Technical Architecture

LEVEL                                   APPLICATION SYSTEMS

**NATIONAL**

OTHER
CUPS
DAFIS

CPMIS

PETS/
MATES | PERS | CIVIL RGTS | SECUR | TRNG | BUD-GET | LAB REL

CTTMS

**REGIONAL,**

**AERO CTR,**

**ACADEMY**

Planned

LR

EGATS | SIDP

TRIMATE

CTTMS    PETS/ MATES

Planned

EPAMS | EGATS    TRIMATE

**LOCAL**

Figure 5-6, Current HRM Application Environment

**6.0**
## ANALYSIS OF AUTOMATION REQUIREMENTS

## 6.1    DEFINITION OF HRM DATA CLASSES.

Data classes are logical groupings of data related to things, referred to as entities, that are significant to the HRM community. The data classes represent data that must be available for business activities and decisionmaking. Data classes are identified in order to:

- determine data sharing requirements across processes

- determine data that is necessary but either unavailable or insufficient for business use

- establish the groundwork for data policy formulation, which includes data integrity responsibility

In order to assess and assign responsibility for data integrity, data classes are defined so that there is only one process that creates each data class.

Data classes are grouped according to the entity to which they are related. An entity is something of lasting interest to the agency -- something which can be uniquely identified and about which data can be stored. Entities are what the agency manages and they serve as a basis for identifying the data needs of the agency. An entity can be categorized as a person, thing, concept, or event. Figure 6-1, HRM Entities, lists the entities which have been identified as being essential to the HRM community:

| | |
|---|---|
| HR Policies, procedures, etc. | Laws and Regulations |
| Organizational Model | Budget |
| Staffing Plan | Position |
| Recruitment and Placement | Employee |
| Training | Security |
| Employee Participation Group | EEO |
| Union | Safety |
| Drug Program | Payroll |
| Leave | External Reports |

Figure 6-1, HRM Entities

Each of these entities contain one or more unique data classes. Refer to appendix C for a complete list of all the identified entities and their related data classes.

## 6.2    ANALYSIS OF CURRENT SYSTEM SUPPORT.

As discussed in Section 5.6, both the geo/technical architecture and the major HRM software system (CPMIS) are slated to undergo radical changes. In the case of the geo/technical architecture, the advent of the OATS capabilities has already begun. As consolidation occurs, most of the major software systems currently supporting the HRM community will disappear, be rewritten to take advantage of new capabilities, or be modified and enhanced to properly support both the maturing view of requirements and the new major systems.

Current systems can be assessed in multiple ways: the degree to which they support business processes, the level of user satisfaction with performance, and technical compatibility (or obsolescence).

Figure 6-2, Current System Support, maps the major agency systems to the business processes summarized in Section 4.2 and Figure 4-1. In cases where no system maps to the process, the opportunity may exist for automation development. In cases where a mapping does occur, the degree of support as well as the other criteria described above must be assessed in order to make recommendations for the future.

Figure 6-2 indicates extensive support by CPMIS for processes in nearly all of the groups. However, in many cases this support only partially meets the automation needs of the process. IPPS is shown to provide support for a large number of processes, but analysis of the actual degree of support to the process must await the availability of a detailed IPPS requirements document. In the Fiscal group, the only HRM system providing widespread support is CTTMS, which tracks training travel expenditures against plan. A number of existing or planned systems provide other support to the training group, and analysis is required to ensure that duplication does not occur.

In some cases, the absence of automation support may indicate that it is not appropriate or else has been given a low priority in the past. In other cases, solutions are being investigated, but have not reached the stage in which definitive projects have been created. Further discussion of the status of support for each of the processes is provided in the next section.

## 6.3    ANALYSIS OF AUTOMATION REQUIREMENTS.

The need for, and status of support for each business process was analyzed using the categories of assessment described in Section 6.2. The results of the analysis are presented in Figure 6-3, Automation Assessment. These observations have been factored into the specific project recommendations in Volume II.

Figure 6-2, Current System Support

Process matrix (C = Current system/application, P = Planned system/application):

| System | Process | | | | Position Mgmt | | | Strategic Management | | | | | | | | Workforce Management | | | | | | Personnel Operations | | | | | Labor | | | Training | | | | EEO | | | Fiscal | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Define Positions | Conduct Classification Reviews | ID Laws & Regulations | Establish Policies | Obtain Technical Data | Project Long Range Training | Obtain Workload Data | Develop Organization Structure | Estimate Attrition | Project Workforce Needs | Conduct Internal Placement | Manage Appraisals | Provide Career Planning | Monitor Drug Program | Track OWCP | Support EPGS | Conduct Recruitment | Process Personnel Actions | Maintain Security Data | Track Leave Schedules | Submit Payroll Data | Produce External Reports | Maintain Union Data | Track Grievances | ID Near Term Training | Develop Training Resources | ID Training | Develop Training Programs | Implement Training Courses | Evaluate Training | Perform Training/History | Track EEO Studies | Monitor EEO | Create EEO Recruitment | Create Budgets | Accept Budgets | Obtain Performance feedback | Monitor Budget Performance |
| CPMIS | C | C | C | C | C | C | C | C | C | C | C | C | C | C | C | C | C | C | C | C | C | C | C | C | C | C | C | C | C | C | C | C | C | | | | | |
| IPPS | P | P | P | P | P | P | P | P | P | P | P | P | P | P | P | P | P | P | P | P | P | P | P | P | P | P | P | P | P | P | P | P | | | | | | |
| TMIS | | | | | P | | | | | | | | | | | | | | | | | P | P | | | | P | P | P | | | | | | | | | |
| TRIMATE | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| CTTMS | | | | | | | | | | | | | | | | | | | | | | C | | C | | | C | | | | | C | | C | | | | |
| FJOL | P | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| MATES/PETS | | | | | | | | | | | | | | | | C | C | | | | | | | | | | | | | | | | | | | | | |
| SIDP | | | | | | | | | C | | | | | | | C | | | | | | | | | | | | | | | | | | | | | | |
| EGATS | | | | | | | | C | | | | | | | | | C | | | | | | | | | | | | | | | | | | | | | |
| EPAMS | | | | | | | | C | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| PREPS | | | | | | | | | | | | | | | | | | | | | P | | | | | | | | | | | | | | | | | |

C = Current system/application   P = Planned system/application

*Note: the processes may only be partially supported by the indicated systems.*

| PROCESS | SYSTEM SUPPORT | FUNCTIONAL SUPPORT | PERFORMANCE | TECHNICAL STATUS | COMMENTS |
|---|---|---|---|---|---|
| Define Position | CPMIS | some | fair | outdated | IPPS |
| Conduct Class Reviews | none | - | - | - | IPPS |
| Track Positions | none | - | - | - | FJOL (partial) |
| ID Laws and Regulations | none | - | - | - | JURIS/PERSONNET |
| Establish Policy | none | - | - | - | IPPS |
| Obtain Technical Data | none | - | - | - | |
| Project Long Range Training | CPMIS | some | fair | outdated | TMIS |
| Obtain Workload Data | none | - | - | - | |
| Develop Organizational Structure | none | - | - | - | IPPS |
| Estimate Attrition | CPMIS | some | fair | outdated | IPPS |
| Project Workforce | CPMIS | some | fair | outdated | |
| Conduct Internal Placement | SIDP | some | OK | OK | |
| Manage Appraisals | EPAMS | some | OK | OK | Enhance EPAMS |
| Provide Career Planning | none | - | - | | |
| Monitor Drug Program | CPMIS | some | fair | outdated | |
| Track OWCP | none | - | - | - | IPPS |
| Support EPGs | none | - | - | - | IPPS |
| Conduct Recruitment | MATES/PETS | some | OK | outdated | Enhance |
| Process Personnel Actions | CPMIS | all | fair | outdated | IPPS/Enhance EGATS |
| | EGATS | some | OK | outdated | IPPS/Enhance EGATS |
| Maintain Security | CPMIS | some | fair | outdated | IPPS |
| Track Leave Schedules | none | - | - | - | |
| Submit Payroll Parameters | CPMIS | all | fair/poor | outdated | IPPS |
| Produce External Reports | CPMIS | all | variable | outdated | IPPS |
| Maintain Union Data | CPMIS | some | fair | outdated | IPPS |
| Track Grievances | LR System | some | fair | outdated | IPPS |
| ID Near Term Training | CPMIS | all | fair | outdated | TMIS |
| | TRIMATE | some | fair | outdated | TMIS |
| ID Training Resources | none | - | - | - | TMIS |
| Develop Training Programs | CPMIS | some | fair | outdated | TMIS |
| Develop Training Courses | none | - | - | - | TMIS |
| Implement Training/ Retain History | CPMIS | all | fair | outdated | TMIS |
| Evaluate Training | none | - | - | - | TMIS |
| Perform EEO Study | CPMIS | some | fair | outdated | IPPS |
| Track EEO | CPMIS | some | fair | outdated | IPPS |
| Monitor EEO Recruitment | CPMIS | some | fair | outdated | IPPS |
| Create Budgets | none | - | - | - | |
| Accept Feedback | none | - | - | - | |
| Obtain Performance Data | CTTMS | some | fair | OK | |
| Monitor Budget | CTTMS | some | fair | OK | |

Figure 6-3, Automation Assessment

Regardless of the specific list of projects selected for implementation, a number of characteristics for the overall HRM automation system have been determined to be appropriate and are as follows:

- In keeping with industry trends, the system should move from a command line interface (CLI) orientation toward a graphic user interface (GUI), probably Windows based. Users should have a common log-on sequence and top level menu structure to gain access to all authorized activity in the national HR automation system. The menu structure should also offer choices to access other systems as well as local capabilities.

- Extensive HELP capabilities should be available online, and the system should have both casual user and expert navigation pathways through the menu structure.

- The user should be largely unaware of where data is stored and where software is executed.

- The HRM system should be available around the clock, and users should receive prompt notification of the acceptance or rejection of transactions. Rejected transactions should have clear explanations as to the reason for rejection.

- Data editing should take place at the point of entry, and to the maximum extent possible, erroneous data should be rejected prior to transaction release.

- In those cases where a transaction must move from location to location for approvals, the movement should be automatic. Support for electronic signatures should be provided.

- The system should be able to generate all standard forms dynamically, reducing the dependence on preprinted forms.

- Authorized users should have online access to personnel master record data and to all pending actions. Support for retroactive action processing should be provided.

## 6.4 MEASUREMENTS AND CONTROLS.

All projects will have a cost/benefit analysis of appropriate complexity in order to support prioritization and subsequent allocation of limited resources. We can be

confident of satisfying requirements only if the requirements are clearly defined and the performance criteria quantified. The function must be clearly specified, the desired performance (e.g., speed) must be quantified, and the technical basis (e.g., adherence to standards) must be described. An effective verification and validation process can support this need.

In a broader sense, the concern is in the measurement of success in meeting the HRM goals and objectives stated in this plan. In Volume II, the Plan identifies specific projects for implementing the defined strategies. The projects have been defined and selected as an appropriate, cost effective package of actions to improve support for the HRM goals, in keeping with the overall agency and HRM IRM goals and objectives. Each project will be initiated with a defined schedule and budget. Periodic progress reviews, as specified by agency order 1370.52C, will determine the status of each project with respect to its predefined schedule and cost targets. Corrective actions will be identified when problems are encountered.

On an annual basis, the HRM Automation Plan will be reviewed, progress assessed, and new recommendations formulated. This process is depicted in Figure 6-4, Annual Automation Planning Cycle. The Automation Working Group will validate the Plan foundation (Volume I) and make adjustments as needed. The primary focus will be on Volume II (the tactical plan). The Working Group will examine suggestions for new projects, assess the progress of ongoing projects, and formulate recommendations which will be documented in a new tactical plan. This updated Plan will be submitted to the Automation Steering Committee for approval and then forwarded to AHR-1 for final approval.

Ultimately, it is user satisfaction which is the immediate and tangible measure of success, and each step in the process will look to this benchmark as a key indicator.
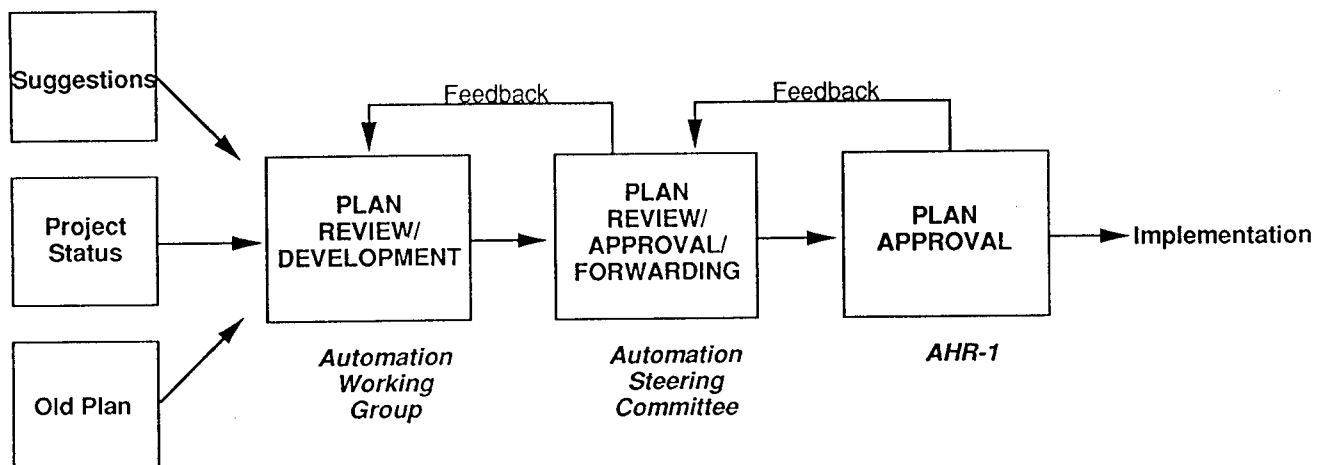
Figure 6-4, Annual Automation Planning Cycle

## 7.0
## TARGET APPLICATION ARCHITECTURE

## 7.1   INFORMATION ARCHITECTURE.

The business processes summarized in Section 4.2 and the data classes of Section 6.1, were arranged in an ordered matrix to derive Figure 7.1, HRM Information Architecture. At the heart of the diagram are the boxes which constitute the Application Architecture. Definition of the architecture considered the personnel resource management life cycle, planning and control levels (strategic, management, and operations) and patterns of common data usage. This view is an abstract one, which does not mimic current (or potentially future) agency organization. The view is also somewhat different from the current CPMIS subsystem structure and from the organization of requirements currently used in IPPS documentation.

The application architecture is a structure for grouping automation capabilities which are related conceptually and which are concerned with the same or related data. The final selection of a management approach to the development of actual software may result in different groupings during development.

## 7.2   HRM DATABASES.

There are two views of the HRM database environment which are of interest: the view at each processing level, and the view across the three processing levels, namely the individual PC, the regional Data General system, and the national IBM mainframe. Data is replicated both within a given level and from one level to another. While some variant of this arrangement will be the case in the future, the availability of a readily accessible relational database environment at the national level, coupled with improved communications capabilities, and new software should reduce the need to copy data from one system to another. Similarly, the use of relational database techniques should reduce data replication within a database environment on a given system. Organization of the databases will use the entities of Appendix C as a point of departure. The logical organization will also be selected with support of the components of the HRM Information Architecture in mind. We therefore can expect to see views of the data which correspond to the Strategic, Workforce Management, Position Management, Personnel Operations, Training, EEO, Fiscal, and Labor components of the architecture. The data will range from highly aggregated data used to support strategic planning models, to very finite data about individual employees, training courses, EEO cases, and the like. Security provisions to regulate access to privacy act protected data will be observed, as will all laws and regulations governing collection and storage of sensitive data.
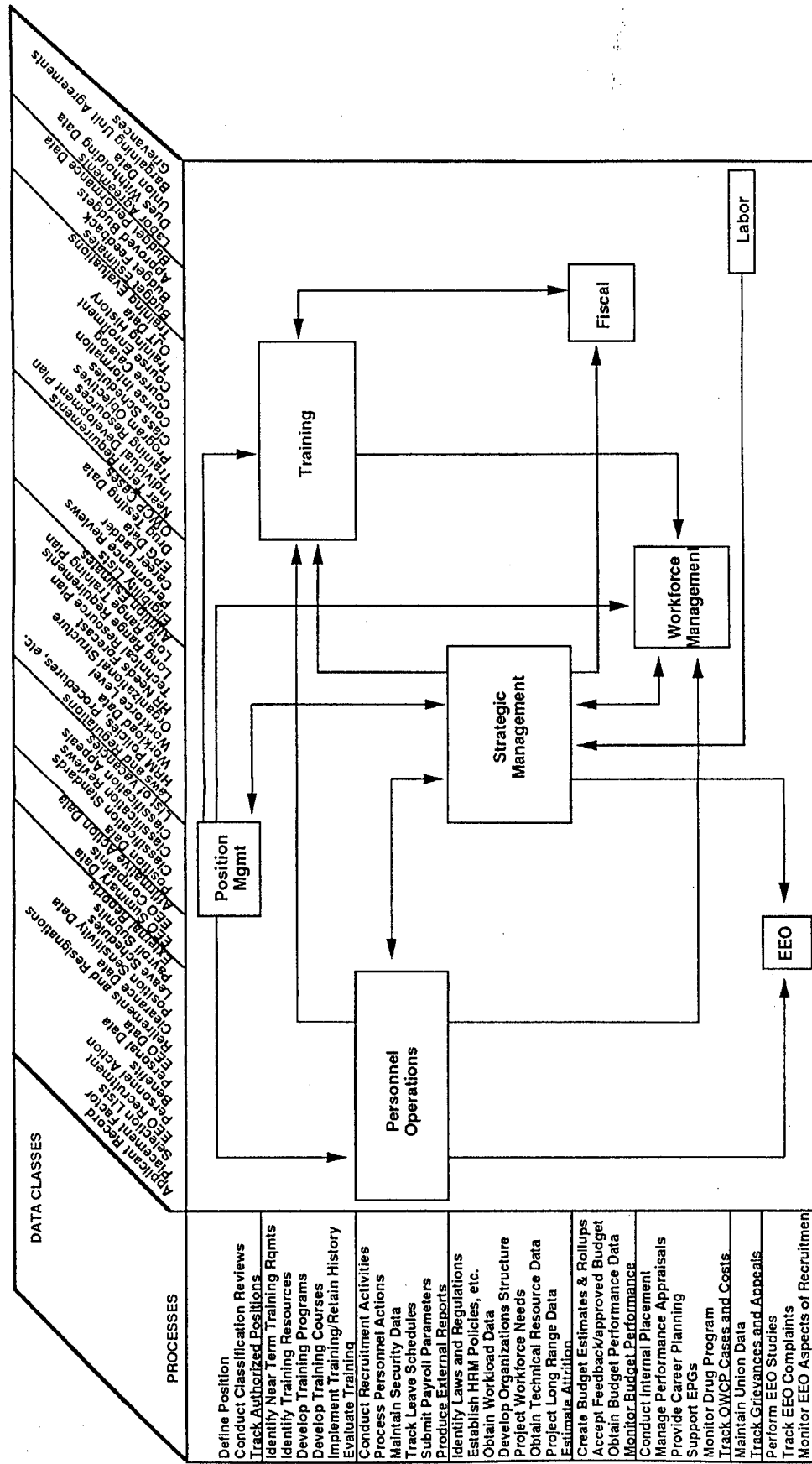
Figure 7-1, HRM Information Architecture

The degree to which the data is integrated in the national level database will be determined when detailed requirements for IPPS as well as agency specific systems are defined. In some cases (e.g., FAA training), detailed requirements are already available, and highly integrated database designs can commence.

## 7.3   HRM APPLICATIONS.

Since a combination of departmental and agency systems will be used to satisfy the needs defined in the HRM Information Architecture of Figure 7-1, a significant challenge will exist to stay focused on the logical components of the architecture. Whether a departmental system (for example, IPPS) or an agency system such as TMIS is under consideration, the key issue is to continue to identify coherent, distinct *"subsystems"* such as Training or EEO. This allows development to be modular and incremental. Two categories of application programs are defined in this plan, infrastructure and problem solving, as a convenience in describing their scope and complexity. Infrastructure applications are large systems serving a broad spectrum of users and providing what can be considered basic services. IPPS falls into the infrastructure category. Problem solving applications are smaller and more process-specific. EPAMS is a good example of a problem solving, process-specific application.

Major HRM applications such as TMIS and IPPS will have modules at various processing levels throughout the agency. The modules will provide appropriate processing support including data collection, manipulation, storage, and reporting functions.

## 7.4   HRM APPLICATIONS ARCHITECTURE.

The combination of databases and applications resident on each processing level and their relationship to each other, is shown in Figure 7-2, Model of HRM Applications Architecture. This figure shows anticipated groupings of application architecture segments and databases.

In the projected HRM Applications Architecture the functionality currently provided by CPMIS will be replaced (and significantly expanded) by the systems labeled Core HRM Environment. This Core Environment will be composed of departmental systems, IPPS, and agency specific systems. IPPS will be focused on the integrated departmental personnel/payroll database and will support processes typically found at the management control and operational control levels. A proposed Human Resource Management Information System (HRMIS) block would contain processes for strategic management and budgeting as well as a supporting process for modelling. TMIS is the system designated to support agency training management.
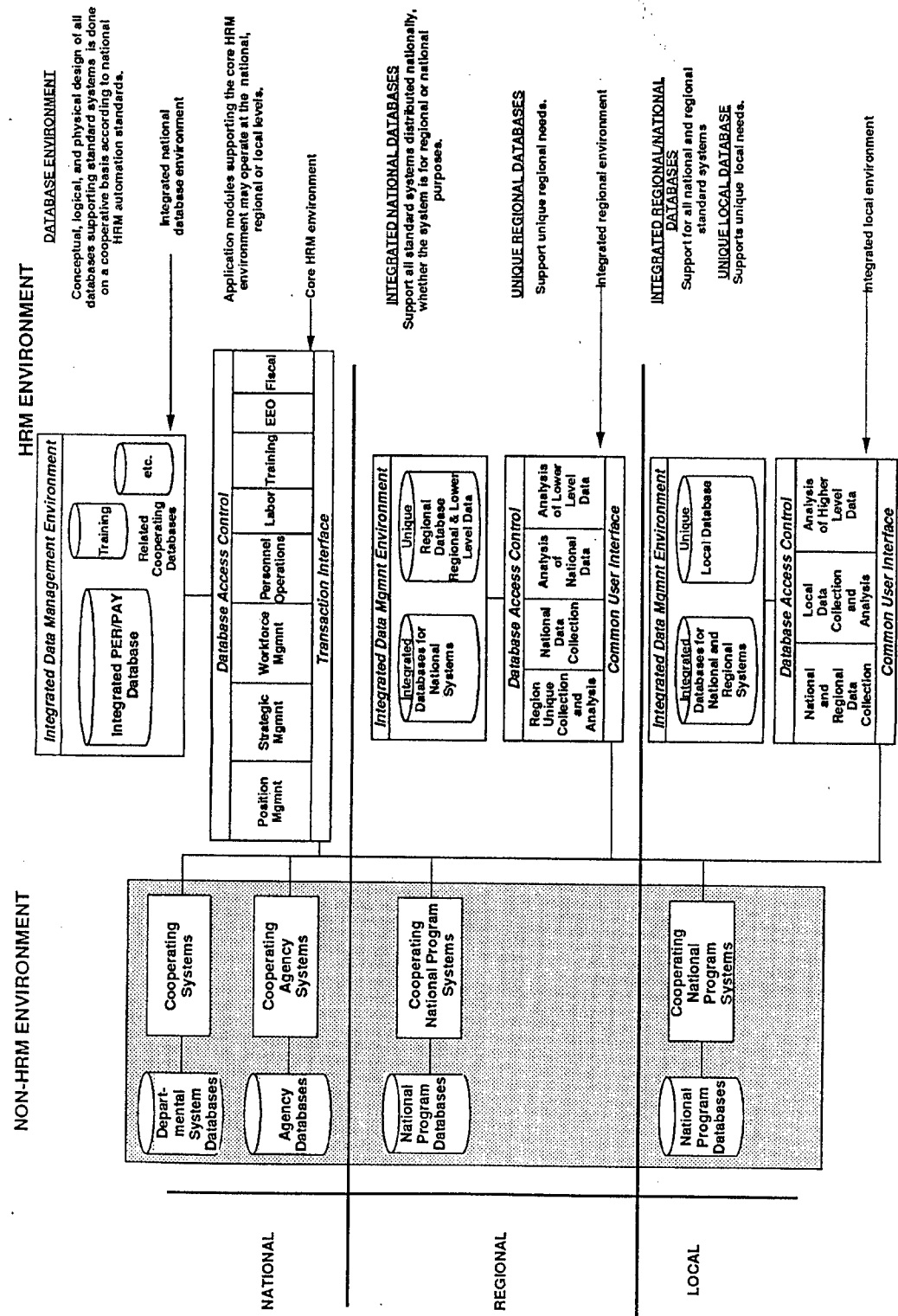
## HRM ENVIRONMENT

**DATABASE ENVIRONMENT**

Conceptual, logical, and physical design of all databases supporting standard systems is done on a cooperative basis according to national HRM automation standards.

Integrated national database environment

Application modules supporting the core HRM environment may operate at the national, regional or local levels.

Core HRM environment

**INTEGRATED NATIONAL DATABASES**
Support all standard systems distributed nationally, whether the system is for regional or national purposes.

**UNIQUE REGIONAL DATABASES**
Support unique regional needs.

Integrated regional environment

**INTEGRATED REGIONAL/NATIONAL DATABASES**
Support for all national and regional standard systems

**UNIQUE LOCAL DATABASE**
Supports unique local needs.

Integrated local environment

### NON-HRM ENVIRONMENT

*Integrated Data Management Environment*

Integrated PER/PAY Database | Training | etc.
Related Cooperating Databases

**Database Access Control**

Position Mgmnt | Strategic Mgmnt | Workforce Mgmnt | Personnel Operations | Labor | Training | EEO | Fiscal

*Transaction Interface*

Cooperating Systems — Departmental System Databases
Cooperating Agency Systems — Agency Databases
Cooperating National Program Systems — National Program Databases

*Integrated Data Mgmnt Environment*

Integrated Databases for National Systems | Unique Regional Database Regional & Lower Level Data

**Database Access Control**

Region Unique Collection and Analysis | National Data Collection | Analysis of National Data | Analysis of Lower Level Data

*Common User Interface*

*Integrated Data Mgmnt Environment*

Integrated Databases for National and Regional Systems | Unique Local Database

**Database Access Control**

National and Regional Data Collection | Local Data Collection and Analysis | Analysis of Higher Level Data

*Common User Interface*

Cooperating National Program Systems — National Program Databases

NATIONAL

REGIONAL

LOCAL

**Figure 7-2, Model of HRM Applications Architecture**

At the levels below national in Figure 7-2, data may be collected for use at any level from local through regional to national. Standardized software will be used to collect data. Data may be replicated or summarized periodically in an upward or downward direction, but the data will not be synchronized. More typically lower level unique data will be summarized and rolled up (consolidated) for use at higher levels of the organization. All reporting of data for both internal and external purposes will be done in accordance with Federal regulations and approval by the agency data management operation. This will ensure a consistent approach to issues of data age and validity.

At the national level, the HRM Core Environment, cooperating agency systems, and cooperating national program systems such as the Aircraft Document and Index System, Airmen Certification System, and the Aeronautical System, may all reside on the CORN mainframe equipment. Similarly, at regional and local levels cooperating systems may in fact reside on the same hardware platform (e.g., OATS). In such a case, the opportunity for sharing data should be vigorously pursued.

At the heart of the HRM automation strategy is the concept of data-oriented design and implementation. This means that definition and control of the data needed to support the defined business processes is of paramount importance in the development and operation of the application systems.

A vigorous, comprehensive data management program is the vehicle which will provide ongoing support to the strategy element. The concept of integrated data management is depicted repeatedly in Figure 7-2.

A cooperative program must be established which examines the conceptual, logical, and physical database design requirements, for all departmental and agency processes and systems. Pragmatic decisions are needed regarding the degree of integration (i.e., single database) versus cooperation (multiple databases) which will be employed. The essential point is not the technical decision reached but rather the coherent, comprehensive management of the analytical process leading to the decision.

Further cooperation is needed in defining the relationship between HRM automation systems and service-developed systems which also contain HRM-related data. The data management program should define the data relationships while further analysis of requirements should define the functional relationship.

Applications systems at the regional and local levels shown in Figure 5-6, Current HRM Applications Environment, will be incorporated into the HRM Applications Architecture at the appropriate levels. These systems include PETS/MATES, SIDP, EGATS, and EPAMS. Figure 7-2 already indicates the incorporation of CTTMS and TRIMATE under the TMIS umbrella. The issue of modify versus replacement of these packages must be addressed on a case by case basis, and is discussed in Section 7-6, Migration Strategy.

## 7.5   HRM STANDARDS.

Achievement of the goals and objectives stated for HRM automation depends to a significant degree on the definition and enforcement of an appropriate standards environment. The cornerstone of the standards will be those which deal with data management, to include data element and data dictionary standards. Ultimately, the data standards should be FAA-wide. The Office of Management Systems has produced a document entitled *"FAA Data Management Program Strategy"*, which can serve as a point of departure for defining the standards. Changes in responsibility and authority may be necessary in order to both adopt standards and enforce them.

Beyond data management, standards are needed for the entire system life cycle; from concept formulation, to maintenance and enhancement. Since the HRM infrastructure is geared to the departmental level system IPPS, strong cooperation between the HRM community, the agency, and DOT is required.

Areas in which standards are clearly needed in addition to the data management area, referenced above, include log-on/user interface, database access, communications protocols, and inter-system data exchange. Definition of standards for the HRM automation environment will conform to those identified by the FAA Systems Architecture Development initiative and ultimately to those adopted for Government-wide use. The Government-wide standards emphasize an open systems interconnection environment, and proprietary interfaces and protocols will not be acceptable in the future.

The standards adopted will provide definition and specificity to the structure and relationships depicted in Figure 7-2, Model of HRM Applications Architecture.

## 7.6   MIGRATION STRATEGY.

Since progress in HRM automation will always be constrained by limited resources, all potential changes must be evaluated and prioritized.

In order to ensure proper consideration, projects should be grouped according to the following categories:

- Program Management Projects - Initiatives to implement and improve automation planning, control, training, and reporting.

- Infrastructure Projects - Major initiatives to implement automation capability to collect, maintain, and report data including technology replacement. These projects require corporate investment over 3-8 years.

- <u>Problem Solving Projects</u> - Initiatives to automate business processes pursuing objectives related to personnel productivity, improved decision support, and timely information reporting. These projects normally respond to efforts to reduce paperwork, speed up information flow, automate models, and eliminate rework.

- <u>Enhancement/Maintenance Projects</u> - Initiatives to improve existing system capabilities and overcome serious operational deficiencies being experienced.

Projects within each category are prioritized, and the categories then reviewed against each other in order to develop an overall timetable.

Fundamentally, the program management and infrastructure projects (including those which put the future geo/technical architecture in place) are of paramount importance, and drive the timetable.

The migration strategy is based on explicit acknowledgement of the significant effect of OATS, CORN, and IPPS initiatives. These initiatives are at one and the same time major consumers of scarce resources and major contributors to technological improvement. The migration strategy seeks to balance all necessary factors as progress is made, and is based on four key assertions, in priority order:

- Current operations must continue to receive sufficient funding to both maintain the services being performed and to eliminate problems and/or make improvements when cost justified.

- The technical program management context must be clarified and strengthened through the development and dissemination of technical management guidance which reinforces agency policy and standardizes its implementation.

- An objective architecture must be defined, and the major initiatives which will constitute the technical infrastructure must be defined, coordinated and implemented according to a deliberate and properly funded plan.

- Applications to solve problems or take advantage of automation opportunities in support of specific business processes must be defined and funded, and developed in a manner consistent with the emerging new technical infrastructure.

# 8.0
# APPROVAL PROCESS FOR IRM PROJECTS

## 8.1 ASSISTANT ADMINISTRATOR FOR HRM.

In accordance with FAA Order 1370.52C, Information Resource Management Policies and Procedures, the Assistant Administrator for HRM (AHR-1) has the responsibility for review and approval of all Human Resources components of the agency IRM Plan. AHR-1 also has the responsibility of designating an Information Resources Manager to assume responsibility for all technical and management aspects of the HRM IRM programs. That responsibility has been delegated to APN-1 and is carried out on a day-to-day basis by APN-100.

## 8.2 HRM AUTOMATION STEERING COMMITTEE.

The Automation Steering Committee (ASC) was established by the Associate Administrator for HRM in December of 1990. The ASC's purpose is to provide management oversight of HRM automation. The ASC has the following broad objectives:

- Provide a formal, objective method for management to establish and control information systems priorities without regard to provincial interests.

- Provide for the development of systems that have a long life and for the protection of the investment in the system. Human Resources Management (HRM) system plans will be based upon business processes.

- Promote the most efficient and effective use of information resources to support business goals.

- Promote the management of data as a corporate resource that can be shared throughout the FAA as required.

In practice, the ASC recommends priorities, endorses plans, allocates resources, and generally seeks to ensure coordinated action in HRM automation. An HRM Automation Working Group (AWG), was established in December of 1990 to develop an Automation Plan for HRM. Upon approval of the Plan, the ASC will have the responsibility to approve all automation projects with a life cycle cost greater than $300,000, while projects below that level need the approval of the HRM Information Resource Manager, supported by the AWG.

## 8.3   AUTOMATION WORKING GROUP OVERSIGHT.

The Working Group has the responsibility to develop the HRM Automation Plan, an activity which will become an annual responsibility. Following approval of the Plan, it is recommended that the Working Group serve as a forum to provide assessments of potential new projects, validate the planning baseline, and make recommendations for new action.

## 8.4   PROJECT INITIATION, REVIEW, AND APPROVAL.

Recommendations for projects may come from any source within or without the HRM community, and from field or headquarters levels. The initiator should collaborate with the AHR office of primary interest to develop an issue paper. The issue paper should be submitted to the HRM Information Resource Manager who (supported by the Working Group as required) will report back on the issue. When it is decided to initiate a significant project, a Project Request Document outlining the need, priorities and benefits will be prepared.

The HRM IRM reviews and approves further action for projects with life cycle cost less than $300,000, and sends the information to AIT-300 for inclusion in the IRMP. For projects above the $300,000 threshold, the HRM IRM will submit the documentation with recommendations to the ASC for review and forwarding to AHR-1 for approval. The approved documentation is then sent through AIT to the agency Information Resources Management Committee (IRMC) for review and approval. The AWG will serve as an advising group to the HRM IRM in formulating recommendations to the ASC.

Acceptance of the Project Request Document by the HRM Information Resource Manager constitutes approval to proceed with requirements and alternatives analysis. The results are documented in a Management Decision Paper (MDP). Approval of the MDP authorizes the start-up of system specification development and completion of projects under $300,000. For larger projects, programming is authorized by approval of a second iteration of the MDP, and implementation of the completed system by MDP version 3.

Development projects are the responsibility of designated program office project managers, and operational systems are the responsibility of data systems managers. Changes to developing and operational systems can be approved by the respective managers, to the extent of their designated authority. For changes exceeding delegated scope thresholds, the approval process described above must be followed.

## 8.5  SYSTEM REVIEWS.

A review of each major national and local system is required at least every three years. The purpose of the review is to validate the continuing utility of the system. For national systems, a decision to continue or to terminate the system, based on the review report, is made by the system manager's director, in conjunction with the appropriate Information Resource Manager. Disputes regarding national systems will be resolved by the Executive Review Committee. All revalidation and terminations are be reported to AIT-300.

Similar procedures should be adopted by regional administrators, center directors, and heads of offices and services regarding the review of the local systems. All review results are reported annually to AIT-300.

Figure 8-1, System Review Criteria, lists the questions to be answered in assessing the need for continued system operation. These are the criteria contained in FAA Order 1370.52C.

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The following evaluative criteria will be applied in compiling the system review report:

a. Does the requirement to have such a system still exist?

b. Does the system still have the ability to meet its requirement and objectives? Identify all currently valid requirements/objectives including those that surfaced after submission of the original system proposal.

c. Is the database accurate and complete?

d. Is the system responsive to users?

   (1) Convenient to use.
   (2) Timely in access and response.
   (3) Flexible in providing the type of response required.

e. What are the costs of the system versus benefits originally cited and/or achieved?

f. Are the required security procedures governing access to the system information adequate?

g. Is the system documentation adequate? This includes:

   (1) Current total system documentation.
   (2) Evidence of proper evaluation and documentation of system changes.

h. Have potential system improvements/expansion been identified?
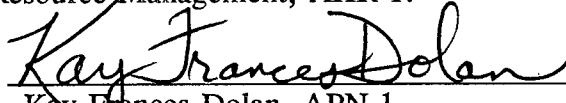
i. What are the potential impacts of canceling the system?

---

Figure 8-1, System Review Criteria

## 8.6 PROJECT RESOURCES AND SCHEDULES.

As a part of the project definition and development process described, each project will be performed according to an approved schedule and resource estimate. These estimates must be included in each submission requesting approval to proceed, including all levels of Management Decision Papers. Further, periodic status reports will be prepared and circulated to inform all levels of management, including top management, of the status of each project.
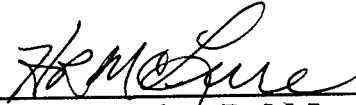
## 9.0
## RECOMMENDATIONS

Implementation of the HRM Automation Plan will require a substantial continuing AHR investment during the coming years to support associated goals and objectives. For the immediate future, the following are recommendations provided for consideration by the Assistant Administrator for Human Resource Management, AHR-1:

Kay Frances Dolan, APN-1
Chair, Automation Steering Committee

● That AHR-1 enforce IRM policies and procedures established in FAA Order 1370-52 for all HRM Automation initiatives.

● That the HRM Automation Working Group continue in a planning and oversight role with a revised charter.

● Require all planned and proposed national HRM automation projects (Life Cycle Model (LCM) Cost ≥ $300K) to have complete project plans, data modelling and data administration analysis prior to system development. These actions will ensure that: 1) the proposed projects are well planned, 2) that software application boundaries are consistent with the approved Information Architecture, and 3) that opportunities for increased workforce productivity are addressed during the initiation of projects.

● That AHR-1 centrally fund projects associated with program management initiatives and projects to develop HRM infrastructure applications. This strategy will promote integration of HRM systems within the FAA and enforce data sharing requirements.

● That AHR-1 centrally fund low cost problem solving projects associated with high payoffs to the HRM community as a whole.

● That the ASC promote local funding of HRM automation problem solving initiatives with ASC oversight of projects costing $300K or more (LCM Cost).

● That AHR Headquarters and Regions complete OATS implementation plans and commence migration of the HRM community to the OATS office automation environment supported in the OATS contract. (i.e., Word, STARLAN, etc.)

Approved ✓ _____     Disapproved _____

_____
Herbert R. McLure, AHR-1
Assistant Administrator for
Human Resource Management

# APPENDIX A

## List of Acronyms

| | |
|---|---|
| AAD | Associate Administrator for Administration |
| ACR | Office of Civil Rights |
| ADP | Automated Data Processing |
| ADTN | Administrative Data Transmission Network |
| AHD | Office of Human Resource Development |
| AHR | Assistant (former Associate) Administrator for Human Resource Management |
| AHT | Office of Training and Higher Education |
| AIT | Office of Information Technology |
| ALR | Office of Labor and Employee Relations |
| APN | Office of Personnel |
| ASC | Automation Steering Committee |
| AWG | Automation Working Group |
| | |
| BSP | Business System Planning |
| | |
| CDP | Candidate Development Program |
| CLI | Command Line Interface |
| CMD | Center for Management Development |
| CORN | Computer Resource Nucleus |
| COTS | Commercial Off-The-Shelf |
| CPMIS | Consolidated Personnel Management Information System |
| CTTMS | Centralized Training Travel Management System |
| | |
| DAFIS | Departmental Accounting Financial Information System |
| DBMS | Database Management System |
| DG | Data General |
| DML | Data Management Language |
| DM/URL | Data Management/User Request Language |
| DOT | Department of Transportation |
| | |
| EAP | Employee Assistance Program |
| EEO | Equal Employment Opportunity |
| EGATS | Electronically Generated and Transmitted SF-52's |
| EPAMS | Employee Performance Appraisal Management System |
| EPG | Employee Participation Group |
| | |
| FAA | Federal Aviation Administration |
| FIRMR | Federal Information Resource Management Regulations |
| FJOL | Federal Job Opportunity Listing |
| FTE | Full Time Equivalent |

| | |
|---|---|
| GOSIP | Government Open Systems Interconnection Profile |
| GSA | General Services Administration |
| GUI | Graphical User Interface |
| | |
| HRM | Human Resource Management |
| HRMIS | Human Resource Management Information System |
| | |
| IDP | Individual Development Plan |
| IPPS | Integrated Personnel/Payroll System |
| IRDS | Information Resource Dictionary Systems |
| IRM | Information Resource Management (or Manager) |
| IRMC | Information Resource Management Committee |
| IRMP | Information Resource Management Plan |
| IRS | Internal Revenue Service |
| I/S | Information System |
| | |
| KSA | Knowledge, Skills, and Abilities |
| | |
| LAN | Local Area Network |
| LRP | Long Range Plan |
| | |
| MATES | Modular Applicant Testing, Examining, and Screening System |
| MDP | Management Decision Paper |
| | |
| NIST | National Institute of Standards and Technology |
| | |
| OATS | Office Automation Technology and Services |
| OJT | On-the-Job Training |
| OMB | Office of Management and Budget |
| OPM | Office of Personnel Management |
| OPR | Office of Primary Responsibility |
| OWCP | Worker's Compensation |
| | |
| PC | Personal Computer |
| PETS | Personnel Employment Tracking System |
| PREPS | Personnel Reporting System |
| | |
| RIF | Reduction in Force |
| | |
| SIDP | Supervisory Identification and Development Program |
| SMO | Senior Management Official |
| SQL | Structured Query Language |
| | |
| TMIS | Training Management Information System |

## APPENDIX B

### HRM Business Process Descriptions

## I. Position Management

A. Define individual positions including establishing and abolishing positions. Maintain position KSA data.

- perform position reviews to determine if restructuring could result in improvements.
- maintain records of all current and previous positions, including information on the competitive area and level of each position.

B. Conduct annual classification review process. Support classification appeals.

- maintain records of reviews, including basis for any classification change, as well as records of the standards used to classify current and past positions.

C. Maintain tracking systems for positions authorized by budget.

## II. Strategic Management

A. Identify relevant laws and regulations.

B. Establish HRM policies, programs, procedures, systems and standards to include:

- HRM
- employee relations
- labor relations
- time and attendance
- training
- pay and leave
- safety

C. Obtain agency workload data.

D. Develop organizational structure and workforce level.

E. Project future workforce needs based on: current workforce level, projected workload, projected attrition, organization structure, technical resource plans.

- include quantity and skill level in requirements projection.
- include analysis of technical resource plans.

F. Obtain technical resource plans.

G. Project long range training requirements based on workforce skill level, changes in workforce, changes in equipment and services environment. Build long range plan.

- services and regions provide requirement projection for national and regionally arranged and conducted training.
- HQ solicits resource input and builds long range plan (LRP).

H. Estimate agency attrition for planning purposes.

## III. Workforce Management

A. Conduct internal placement activities to track and fill vacancies.

- create and maintain a merit promotion system.
- generate eligibility lists.
- generate and distribute vacancy announcements. Maintain X-118 qualification requirements for each vacancy, as well as a record of placement factors.

B. Manage performance appraisals and correct deficiencies. Process incentive awards, maintain standards, ratings and reviews.

C. Provide career planning.

- create and maintain career templates.

D. Support EPGs.

E. Monitor drug program.

F. Track OWCP cases and costs.

- monitor health and safety program.
- include hours lost due to on-the-job injuries.
- track documentation status.
- perform trend analysis on OWCP data.

## IV. Personnel Operations

A. Conduct recruitment activities to fill vacancies.

- include expert/consultant recruiting and special employment groups.
- conduct examinations, save scores.
- maintain data on recruiting activities, including sources, etc.

B.  Process personnel actions and notify employees (General process to encompass all actions leading to database update.  Document preparation included.) to include:

- benefits.
- retirements.
- pay administration.
- retirement annuity estimates

- employee data.
- reductions-in-force.
- furloughs.

C.  Maintain position sensitivity data and clearance data.  Comply with security regulations.

- maintain historical data.

D.  Track leave data, compensatory time, religious observance, injury time, etc. at the supervisory level.

- ensure there is sufficient balance when leave is taken.
- support leave sharing program.

E.  Submit calculation parameters to payroll.

- timely response required from payroll system.

F.  Produce required external reports.

- provide for necessary reports to the Treasury Department, IRS etc.

## V.  Labor

A.  Maintain and make available, as required, data pertinent to union activity.

- include union dues withholding information.
- include union data on retention register, merit promotion lists, reduction-in-force, and employee activity.
- maintain labor agreements data.  Track bargaining units petitions.

B.  Maintain tracking system for grievances and unfair labor practice claims.

- monitor time spent in union activities such as appeals and grievances

## VI. Training

A. Identify near term training requirements.

- near term requirements stem from IDPs and can be rolled up to the national level and compared with the previously developed LRP.

B. Identify training resources.

C. Develop annual training programs.

- annual training program is defined based on final assessment of need, priorities and resources. Quota is developed and allocated.

D. Develop training courses based on identified needs.

- specific courses are developed by agency personnel or contractors in response to identified requirements.

E. Implement training program and retain history data.

- training courses are provided according to the agreed upon program.
- registrations are processed.
- quota is managed.
- history data is maintained.

F. Evaluate training effectiveness.

- evaluation can occur at the student/course, the program, or at the national level.

## VII. EEO

A. Perform studies to identify EEO trends. Maintain EEO data.

- identify discriminatory trends.

B. Track EEO complaints.

C. Monitor EEO aspects of recruitment.

- determine whether women and/or minorities and/or handicapped are included in application pools.

## VIII. Fiscal

A. Create budgetary estimates and roll-ups.

B. Obtain budgetary feedback and approved budgets.

C. Obtain fiscal performance data.

D. Monitor fiscal performance against budget.

# APPENDIX C

## Entities With Data Classes

This appendix contains the entities defined for the HRM automation environment, together with the data classes pertinent to each entity.

## HR policies, procedures, programs, standards, and systems

to include:

- HRM
- employee relations
- labor relations
- training

- time and attendance
- pay and leave
- safety

## Laws and Regulations

- laws and regulations

## Organizational model

- organizational structure
- current workforce level (incl. skill level)

## Budget

- budget estimates
- approved budgets

- ABU feedback
- budget performance data

## Staffing Plan

- workload data (incl. agency missions and functions)
- human and technical resource plan
- HR needs forecast

## Position

- position data (incl. KSA data)
- classification reviews
- career ladder

- classification appeals
- classification standards

## Recruitment and Placement

- applicant records (incl. exam scores)
- vacancies
- selection lists from merit promotion system

- EEO recruitment data
- placement factors
- eligibility lists

## Employee

- personnel action
- retirement and resignation data
- performance reviews, standards, and ratings

- benefits
- attrition estimates
- personal data

## Training

- long range requirements
- short term training requirements
- program objectives
- course enrollment
- class schedules
- training evaluations
- course information

- long range plan
- training resources
- course catalog
- training history
- individual development plans
- OJT data

## Security

- clearance data

- position sensitivity data

## Employee participation group

- EPG data

## EEO

- EEO data
- EEO complaints

- EEO summary data
- affirmative action data

## Union

- labor agreements
- appeals and grievances
- data on retention registers, merit promotion lists, RIFs, employee activity

- dues withholding information
- bargaining unit petitions

**Safety**

- OWCP case data with associated costs

**Drug Program**

- testing records

**Payroll**

- payroll parameters

**Leave**

- leave schedules

**External reports**

- external reports

# APPENDIX D

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